MARCH 1984
ISSUE #48
$3.00
(Canada $3.50)

SoftSide®

Your Window On Today's Personal Technology

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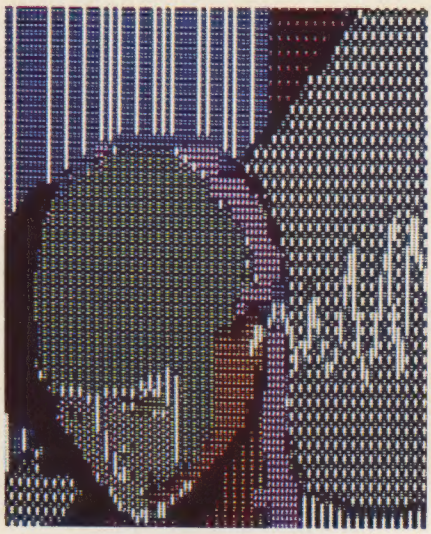

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Borges, Babel and the Demon of the Database

by Michael Tucker

Databases! In a funny sort of way, this issue of *SoftSide* has a lot in common with a famous story by the even more famous Argentine writer and fabulist Jorge Luis Borges.

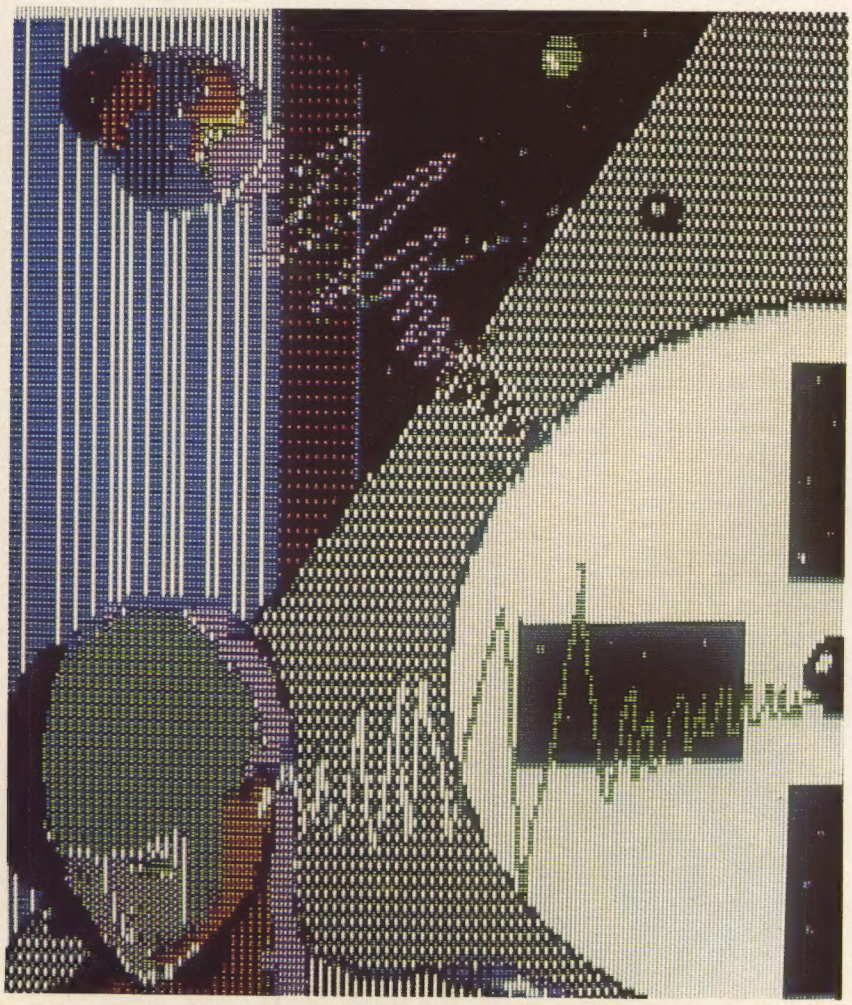
In his "The Library of Babel," Borges asks his readers to envision the ultimate bookery. It would be light-years long on every side, and contain every combination of letters of the alphabet — and thus, every possible book, "Everything: the minutely detailed history of the future, the archangels' autobiographies, the faithful catalogue of the Library, thousands and thousands of false catalogues . . . the true story of your death."

If you're interested, it's a fairly common theme in Fantasy, Science Fiction and the sort of literature that's produced by mildly crazed mathematicians who find something amusing in the fact that if you just had enough monkeys pounding away on enough typewriters you'd eventually come up with — by chance alone — every masterpiece of literature that ever has been, or will be, produced by humankind.

The rub, of course, is that for every great book you get from your monkeys, you also receive several tons of absolute garbage. For every Gibbon's *Decline and Fall*, there's a perfectly plausible text that has Eric the Aztec (that noble heir to the mingling of Viking and Indian blood which resulted from the Norse settlement of North America) sailing across the Atlantic as the advance scout of the Greater Vinlandish conquest of Europe in 1493. For every collected works of Shakespeare, you've got a million productions of *Hamlet* as a musical comedy (the Melancholy Dane, you see, juggles Yorick's skull while singing "I ain't got noo-body." Real Box Office Smash. Might outgross *Annie*). In fact, for every word that makes a bit of sense, you've got mountains of gibberish.

As a result, Borges' poor Librarians have lives that are, at best, ghastly. They wander from room to room, book to book, always in search of meaning, and never finding it. Occasionally, on well-omened days, they drop dead from pure vexation.

(It's said that Borges got the idea for his story while he was working as a librarian in Buenos Aires. Once, one of his superiors came across a reference to Borges in a textbook, and then ran to tell everyone that, by an amazing and amusing coincidence, their lowly clerk had the same birthdate and name as a famous writer.)



DATABASE 1 by William C. Bramble III, ©1984.

Is Fiction "True?"

But, when you come right down to it, don't those poor, wandering, tortured librarians look a lot like our own sweet selves? We're a people and an age buried in data. We go to work in the morning and earn our daily bread sorting through profit and loss reports. We go to lunch, meet a friend, and discuss football statistics. We

come home in the evening, flip on the tube, and are instantly bombarded by news, weather, sports and ads for more products than any human being could consume in several life-times. Our income, our well-being, even our personal happiness depend on our ability to scan vast amounts of input, screening out irrelevant material, establishing hierarchies as to the relative importance of the remaining information, and then making rational judgements accordingly.

And, occasionally, on particularly well-omened days — as we try to separate Smurf commercials from the stock market reports that could mean the difference between vast wealth and a quick trip to the food-stamp office — we drop dead from pure vexation.

If only there was some wonderful device that could organize a little information for us, our lives would be so much easier (and longer). In one of *his* workings of the universal library theme, Stanislav Lem hints that what's needed is a friendly demon — sort of like Maxwell's Demon, but dealing with information rather than heat — that would magically divide the data from the drivel for us, so we could focus our energies on making intelligent choices.

And that brings us to databases, for the demon has been invoked.

A database is a program designed to take care of the nasty side of information management; the sheer, simple, mind-boggling, dull business of shoveling facts and figures from one place to another, finding proper pigeonholes for it all, and then retrieving the whole mess whenever and in whatever order you'd care to have it. Perhaps, for instance, you'd like to keep track of your investment portfolio. A database program could organize your records on individual stocks according to pretty much any criteria you prefer — market activity, dividends paid, the firm name's position in the alphabet, the police record of the company founder, whatever.

You could, naturally, write such a program (and, in fact, there are whole bookstores devoted to the subject of muscling files about in one language or another) but it's usually a lot easier and quicker to buy one of the many databases currently on the scene. Ironically enough, the problem is deciding which one. They're very probably the hottest thing on the software market this season. About the only people who aren't busily touting their *this* year's data management programs are the software firms who've lumped their *last* year's database in with an off-the-shelf word processor and spreadsheet, and are now cheerfully peddling it as an "integrated" package.

To Choose Your Demon

This issue of ***SoftSide*** should make your choice of demon a little easier. Along with our usual reveiws of books, magazines, and other information sources, we take a look a few of the more popular database programs around. For *Apple* users, Cary W. Bradley discusses some of the (diabolic and otherwise) characteristics of *DB Master*. Commodore fans, meanwhile, can't take a peek at some of their familiar spirits in James Trunzo's review of Mirage Concept's *Database Manager*. For those who haven't managed to escape the Big Blue tidal wave, Arthur Fink examines *Citation* from Eagle Enterprises, and *Lotus 1-2-3* from Lotus Development Corporation.

The danger of this issue's demon is not new. Technology has led to the imbalance of power before, and shall again.

In our continuing attempt to turn ***SoftSide*** itself into a database, our new *Cross Reference* section offers a quick overview of some of the most interesting software currently on the market. *Windows* and *At A Glance*, meanwhile, offer similar glimpses of 48 of some of informative personal technology publications on January's newsstands. *Magwatch*, finally, provides reviews of new and recent magazines devoted to exciting business of blending technology with our everyday lives. This month we look at *Home Entertainment* and *Micro Discovery*.

Douglas Keljikian and Herbert Swartz then consider the darker side of the demon. They ask what the political and social implications will be of the use of databases by those in power, particularly in the light of the recent (and very disturbing) book, *The Rise of the Computer State*, by David Burnham. What, they wonder, will be the result when *any* Federal Agency, *any* political party, *any* special interest lobby, can — at moment's notice — summon up reams of personal data about anybody in the country? When "archangels' autobiographies" — much less those of us poor fallible mortals — are really open books? Do we want to hand over that kind of power to institutions which are already notorious for the mis-use of information, or worse, for the mis-use of *mis-information?*

Be advised not to read Messieurs Keljikian and Swartz's meditations on the matter late at night, at least not if you wish to sleep peacefully. In fact, even in the daylight, when you're sitting at the breakfast table with this magazine in one hand and a fresh cup of coffee in the other, you might want to protect yourself against a chill or two by remembering that, if you questioned our authors closely enough, they could emerge as optimitists. After all, the danger of this issue's demon is not new. Technology has led to the imbalance of power before, and shall again.

Consider the history of steel. Whenever that particular alloy of carbon and iron is introduced to a culture, then that culture almost always splits between a steel-using elite — in Europe, the armored knights; in Japan, the Samaurai, whose swords are still unsurpassed in terms of metallurgy — and the vast bulk of the population that is more or less helpless before it.

Yet technology, like a flower or a plague, spreads. Eventually, the art of steel makes its way to the serfs — just as, perhaps microcomputers, database software for personal use, and telecommunications databases like the Source and Compuserve, are bringing information technology into our own lives — and in time blacksmiths turn to producing simple things like kitchen knives, bedsprings, bridge supports . . . guns.

And, one day, the Knight is riding to beseige Jerusalem. He is awesome, glorious, beautiful and terrible — like some half metallic god of destruction. The sun glitters from his eyes and armor. He sees before him a dirty little man, a peasant standing ankle-deep in the mud of the road. The Lord of Destructions draws a sword.

The little man, shaking with terror, pulls a crude tube from ragged clothing. There is a strange report, a puff of smoke, a scent of brimstone — the smell of a demon — and the Knight falls, bleeding, into a ditch.

For better, or for worse, the whole world is changed.

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SoftSide Vol. 7, No. 3

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SoftSide (ISSN 0274-8630) is published monthly by *SoftSide* Publications, Inc., 10 Northern Blvd., Amherst, NH 03031. Printed at Volkmuth Printers, St. Cloud, MN. Second class postage paid at Amherst, NH, and additional mailing offices. Subscription rates: US, APO/FPO and Canada, $24/12 issues. First Class US, First Class Canada and Mexico, $30/12 issues. All other foreign countries (Surface), $40/12 issues. All remittances must be in US funds. POSTMASTER: Please send form 3579 to *SoftSide* Publications, Inc., 100 Pine Street, Holmes, PA 19043.

Editorial

It's A Matter Of Change

SoftSide is becoming the magazine of consumer technology magazines. That's more than just a tongue-twister. It's a new idea.

Beginning with issue #48, we have structured *SoftSide* as a menu to a large database of magazine and book information.

To fulfill this goal, we have instituted a series of unique approaches, each intended to assist you in exercising better control of that ocean of information that flows by monthly.

One of the most startling features we are offering in *SoftSide* is our MagDex cards. These cards answer the problem of keeping your magazine library useful and truly available.

The *Windows* and *Cross References* departments provide glimpses of the latest subject-matter appearing in these various tech magazines. With literally thousands of pages of worthwhile material published monthly, these sections will assist you in deciding what you want to know. Whenever possible, we will offer back issues and reprints of this windowed material. If we are windowing a book, we intend to determine its availability at the major book chains and/or offer it from our book service.

We love magazines. To us and, I'm sure, to many of you, they are like people. They have different personalities and goals. They are "experts" about different things in different ways. They live month to month, changing with their subject matter over time.

Anyway, magazines are, themselves, worthy of review. And we will be doing just that. This month it is *Micro Discovery*. It is a very new publication with a very "user-friendly" approach to the microcomputer scene. We thought you'd like to know about it. In the coming months we will showcase other important publications and describe their niche in the field of technological publications.

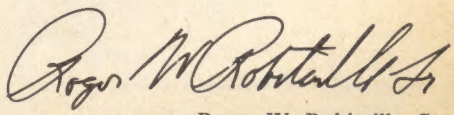
You probably noticed our graphic centerfold. With this feature, we hope to elicit an "ahah" through your eyes. We want you to enjoy what you see and take away something worth remembering about today and tomorrow — a picture of a thought which words alone could not describe. Let us know what you think.

For those of you who have been wondering about ***SoftSide Selections*** (previously known as DV and CV), we have good news and bad news. We have discontinued the cassette versions of ***SoftSide Selections*** (CV). We have already advised those subscribers about their options. The disk version, of course, is still in full force, but we are now treating it as a separate entity. There are, in fact, some fascinating developments going on over there — everything in its proper moment.

The changes aren't over yet. But then again, magazines are like people — they just keep changing with the times.

It is becoming more and more true that, in order to conduct a successful life, we must know something about everything. If it's not something that you must know, or something that you ought to know, then it's something you want to know. If that weren't bad enough, when you really finally know it, it changes, and you need to forget it — quickly.

See you next month.



Roger W. Robitaille, Sr.
Publisher

ATARI SOFTWARE FOR THE WHOLE FAMILY

Here are four software packages designed for the different people in your family.

A BASIC COMPILER FOR THE PRO-GRAMMER

ABC (A BASIC Compiler) automatically translates Atari BASIC programs into high-performance integer P-code that runs up to 12 times faster!

Perfect for developing system software and commercial games, ABC accepts most BASIC programs (unless floating point dependent) with little or no modification. Compiled P-code is a self-standing DOS object module that is unLISTable and runs without the BASIC cartridge.

ABC allows expressions in DIM, GOTO, GOSUB, and RESTORE statements, doesn't require you to re-order lines, and fully supports string and sub-string operations.

Give your BASIC programs the look and "feel" of professional products with ABC. 40K Disk ***$69.95***. Manual alone ***$9.95*** (credited toward compiler purchase).

MAKEBOOT lets you create self-booting disk or cassette versions of your ABC compiled software. Reduces overall program load time and saves memory and disk space by eliminating DOS. 40K Disk ***$14.95***.

AN EDUCATIONAL TOY FOR PRE-SCHOOLERS

Monarch is proud to present ***SofToy***, an educational program smart enough to act simple.

Bells ring, balls bounce, owls hoot as SofToy and its colorful interactive display gently introduce children (two years and older) to spatial relations, letters, numbers, even elementary programming! SofToy lets kids become familiar with computers, without arbitrary demands, competition, or intimidation. SofToy grows with children, too. At more difficult levels, the match game is a real challenge for the whole family. 24K Disk ***$29.95***.

TOOLS FOR THE SERIOUS USER

Power Tools I combines four sophisticated text processing tools on one easy-to-use utility disk.

DIFF shows you differences between two ATASCII text files: for example, changes you made in a program or document from one version to the next.

Manually searching for a particular text file can take hours. But now, with *SEARCH*, you specify a search string and a list of files. *SEARCH* examines the files and points out which ones have that string. You'll never lose your Fudge Brownie recipe again!

CHANGE is a powerful search and replace utility that operates on multiple files with one command. For example, you could change character names throughout your novel with a single command, even if each chapter is a separate file.

The special pattern-matching and multiple disk capabilities of *SEARCH* and *CHANGE* are an added plus.

TRANSLIT lets you swap one character set for another (for example, upper case for lower case) throughout a file with one command.

Power Tools I is ideal for professional business and software development text applications. 40K Disk ***$34.95***.

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Move Over IBM?

by Phil Daley

According to Apple Computer Company, the computer for everyone who dislikes or doesn't understand them has arrived. "Every few years computers are introduced that establish new standards for the industry. In 1977 we had the Apple II. In 1981 the IBM PC." With the introduction of the "Macintosh", Apple has staked out its claim to "the rest of us", those who don't know how to use a computer.

With the arrival of the "Mac", Apple is making a big push for the medium priced microcomputer market. The new literature is much more consumer oriented than past introductions. The new "1984" television ad is certainly eye catching, even if I don't really understand what it has to do with computers. In short, Apple is really doing a tremendous marketing job on this, the latest in the Apple line of computers.

Their introductory literature very explicitly compares the Mac to the IBM PC, to the detriment of IBM. There are several screen comparisons of the two computers running equivalent software packages, eg. Multiplan, a business graphics package, and a wordprocessor. Apple is stressing the ease of use of the "mouse" compared to the old-fashioned method of control codes and cursor movement. They are also emphasizing the graphics capabilities and screen display.

If you haven't used a mouse personally, you probably won't have the proper appreciation for how much easier it is to use. I was one of the original skeptics of how much use a mouse would be, and even after the demonstration of the Lisa at the Boston Computer Society last year, I wasn't convinced that it would be that useful to someone who was accustomed to the "real" way of doing things. It took me about two hours on the Lisa to decide I had been mistaken, and that the mouse is a really great invention.

After all of the rumors and assorted stories about what the Mac would or would not be capable of doing, I was not sure what to expect when I saw it in operation. One thing, for sure, was that it would have less capabilities than Lisa, and would probably be slower and less powerful. While those items may be true, Apple has done an amazing job of disguising them, so that the Mac acts as though it is indeed a little Lisa, able to do most of the same work, even better! While the 3½-inch disk drive may limit the amount of storage space, in most user situations, it will only mean swapping disks sometimes when changing tasks. The drive does hold 400k of programs and data. Adding another drive just requires a drive, no controller.

The Mac actually is more user friendly and easier to use than the Lisa. The MacWrite program has more typefaces and combinations of size and style than LisaWrite. The MacPaint program is much simpler to use than LisaDraw. The software is much more human engineered than previous programs I have used. It is a very impressive machine, especially considering the price.

Speaking of price — while it doesn't appear to be in the same price class as a PCjr ($699 for jr, $2495 for Mac), when you add in the additional cost to make the jr a "real" machine, they are within several hundred dollars of each other. In "Introducing IBM PCjr", the authors state that a working PCjr will cost $2195. This does include a printer. The jr also has color which the Mac doesn't have, presumably to be compatible with Lisa — all of the Mac software will run on the Lisa. The Macintosh software includes the same Lisa technology of windows, icons, pull-down menus, software integration and mouse commands.

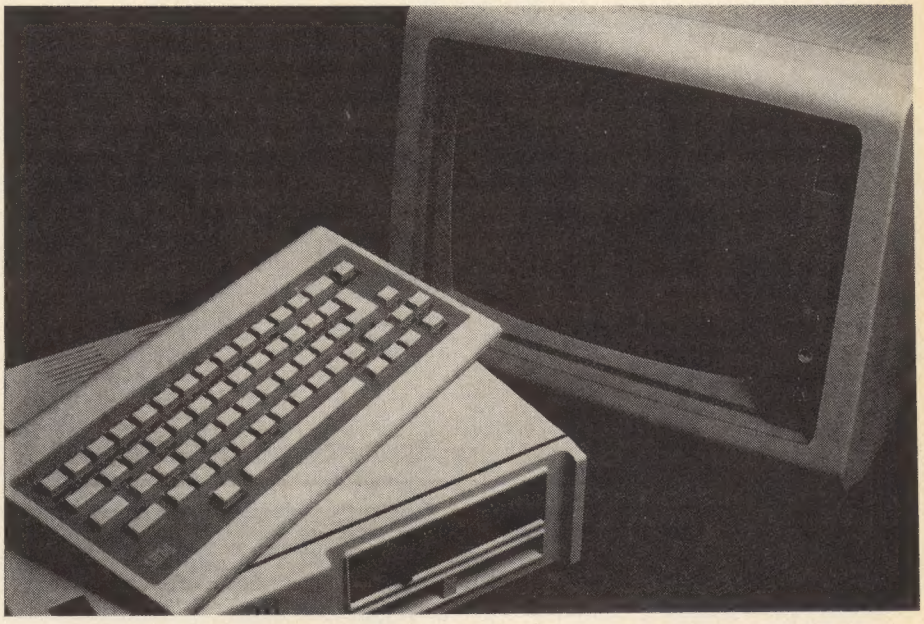
The Mac has the same 68000 processor as the Lisa, quite a bit more powerful than the 8088 of the IBM series. The Mac also has the mouse, a built-in clock/calendar, 64K bytes of ROM, 128K bytes of RAM, polyphonic sound, and an RS-232 and an RS-422 serial communications ports. The graphics are very clear and sharp on the 9" diagonal screen — 512 x 342 pixel bitmapped display. Additional accessories include the Apple Modem (for communications with other computers), Imagewriter Printer (for printing those high resolution displays), Numeric Keypad (for spreadsheeting), External Disk Drive (saves swapping disks), and a Soft Carry Case (it weighs less than 20 pounds).

Apple also announced that it would be selling some new scaled-down versions of the Lisa which will make them less expensive to own. The new Lisas will have the same built-in 3½-inch disk drive that the Mac has, so that you can run the Mac programs on your Lisa. Upgrade kits for current Lisa owners will be available free for a limited time ($595 value). The smallest Lisa has already picked up a nickname — Big Mac.

"The real genius is that you don't have to be a genius to use a Macintosh. You just have to be smart enough to buy one."

Better than the PC?

by D. Philips



A little over two and a half years ago, IBM introduced its first personal computer — the IBM PC. Since its introduction, the PC has pretty much astonished everybody, including IBM, with its success. By the end of 1983, IBM will have sold over 500,000 PCs and the PC will have generated over $1,000,000,000 gross dollars in sales. The PC has overtaken the Apple II as the industry standard microcomputer.

Recently IBM introduced a home version of its very successful computer — called the PCjr. This computer has more similarities to the PC than differences, which should assure its place in the marketplace even if it is more expensive than most home computers. And the name "IBM" on the front certainly will help. I don't think there is anyone who will argue that the PCjr will not be a commercial success. In addition, it will exert its effects on the whole home computer marketplace. If it helps create some standardization, it will benefit everyone.

IBM thinks that the PCjr presents a "triple threat" to the personal computer marketplace:

- *Personal productivity features* — IBM has many software programs available that will improve productivity in the home such as, home budgeting, checkbook management, income tax preparation, recipe file programs and the like. It is also an entertainment machine. While not as good as Atari or Commodore in graphic screens capability, it will certainly play games that can be educational and entertaining.

- *Supplement the PC at the office — work at home.* Many businesses now use a PC for many work-related functions. Your typical executive can now bring his work disks home and work after supper. The wife can now keep an eye on her husband instead of him working late at the office. Bringing work home is a real attention getter — a real incentive to buy and a good way to convince a recalcitrant wife that the family really needs a computer.

- *Educational market* — Some schools are already buying PCs and the lower introductory price of the PCjr combined with the amount of developing software should convinve many of them to go the IBM route.

IBM has learned much in the time it has been marketing personal computers and has seen some companies fall by the wayside. Texas Instruments dropped the 99/4a because of a closed door policy regarding third party software and hardware developers. IBM with its open architecture policy is very important for third party support. There is no end of new companies hitching a ride on IBM's coattails.

By having several models compatible at different price levels IBM will garner a much larger market share. The upward and downward compatibility is important and IBM has learned a lesson in that regard. The fact that the Apple has been out there in somewhat the same format for 6 years has led to the most software being available for that particular computer. With the PCjr being compatible with the PC, software developers have little to fear that software they write today will be without hardware tomorrow. Commodore has yet to learn that lesson.

IBM's overiding concern appeared to be making it as compatible as possible with the PC without hurting its sales. Before we look at compatibility, lets look at the basic machine. (See Figure 1).

Miscellaneous Notes:

The expansion potential important. It won't be long before someone introduces a box of connectors with its own power supply to connect to the PCjr's parallel port to make it able to accept all of the standard PC cards.The power supply is minimal — if you want to expand a lot, be sure the items have their own power supply.

The keyboard has no characters printed on or near the keys. Overlays are available for the keyboard which will allow software manufacturers to choose what function each key will do, and mark it on the

Figure 1:

Memory: 64K RAM expandable to 128K
User available with BASIC: 44K for entry model
Entry model:
  Screen display: TV or monitor 24 x 40
  Graphics: low-res 160 x 100 16 colors
    med-res 320 x 200 4 colors
    hi-res 640 x 200 2 colors
Enhanced model:
  Screen display: Monitor only 24 x 80
  Graphics: low-res 160 x 100 16 colors
    med-res 320 x 200 8 colors
    hi-res 640 x 200 4 colors
Sound: 3 voices
Keyboard: 62 chiclet rubber covered keys with infrared connect link - cord is extra
Price: Entry- $669
  Enhanced- $1269 includes 128K, disk drive and 80 column card

↪

overlay. Each key is completely definable as to what keycode it generates.

The PCjr uses a desktop transformer *ala* Atari. This saves on the weight of the unit and spares the necessity of a fan, saving on expense.

16K of the 64K is necessary for a video buffer. Remember this when you wonder why you have so little BASIC workspace in the entry level machine.

The 64K ROM includes power-on diagnostics, cassette BASIC interpreter, cassette operating system, I/O drivers, 256 character matrix, and diskette bootstrap loader.

The 64K ROM contains a big BASIC — even more commands than PC extended BASIC, which is large by microcomputer standards.

Some Additional Costs:

$140 for 64K memory and display enhancement
$30 for TV connector — $20 for monitor
$40 for joystick
$75 for extended BASIC cartridge
$65 for DOS 2.1
$175 for thermal printer + $40 printer adapter
$595 for graphics printer + $99 for Parallel printer port
$20 for keyboard cord
$199 for internal modem

The PCjr uses half height disk drives. While this enables the unit to be smaller and weigh less, with these drives the heads have a settling time, or else they may not read or write reliably. This is the major reason for DOS 2.1. The 1/50th second settling time is included in this version for greater reliability of the data.

The PCjr doesn't use parity checking. If you've had a PC lock up on you, you may appreciate this fact more than most. In addition to being cheaper, leaving this out made the circuitry simpler, and the computer less likely to go out to lunch. Since the home market deals in less critical data, IBM probably thought this extra checking would have been overkill.

DOS 2.1 is essentially the same as DOS 2.0 except for the change previously noted. For those of you who are unfamiliar with PC-DOS, I will give a brief summary of the commands:

File Commands

COPY — Copies files between devices
DEL or ERASE — Deletes a file
DIR — Outputs a list of disk files. Allows wildcard matching
RENAME — Changes the name of a file
TYPE — Lists a file to screen
VERIFY — Sets disk write checking
VOL — Displays name of disk

Directory Commands:

CHDIR — Changes the default directory
MKDIR — Makes a new subdirectory
RMDIR — Deletes a subdirectory
PATH — Sets a directory search list

Miscellaneous:

BREAK — Set CTRL-BREAK status
CLS — Clear screen
DATE — Set current date
PROMPT — Set system prompt
SET — Set information for program use
TIME — Set current time
VER — Display current DOS version

Batch File Commands:

ECHO — Set message display
FOR..IN..DO — Allows loops
GOTO — Like a BASIC GOTO
IF/IF NOT — Conditional commands
SHIFT — Moves batch file parameters
PAUSE — Halt execution until key is hit
REM — Display comment on screen

These are the routines contained in COMMAND.COM and are executed from the keyboard or batch file.

Additional programs are supplied on the DOS disks that can be executed by typing the name of the program:
CHKDSK — Checks disk amd RAM memory
COMP — Compares disk files
DISKCOMP — Compares disks
FORMAT — Initializes disks (opt. /DOS)
RECOVER — Recovers bad files
SYS — Adds DOS to formatted disk
ASSIGN — Changes disk drive assignments
BACKUP — Backs up a hard disk (on a PCjr?)
RESTORE — Restores a hard disk from floppies
TREE — Lists multi-layered directories
DEBUG — Machine language debugging tool
EDLIN — Simple line text editor
EXE2BIN — Changes .EXE files into COM
LINK — M/L program linker
FIND — Searches for strings
MORE — Pauses after screenfull
SORT — Sorts lines in file
GRAPHICS — Graphics bit dump to printer
MODE — Sets peripheral characteristics
PRINT — Allows background printing

The most important characteristic of the PCjr is the MS-DOS compatiblity. While the PCjr forges no new ground, hardware speaking, the PC compatability gives it immediately a wealth of good software. IBM supplies a list of PC programs that work on th PCjr. Generally speaking, if they will fit into 128K RAM and call no non-standard DOS addresses, they will run on an enhanced PCjr. Of course, the entry edition is quite limited in the programs it will run. Most PC software is on disk, and with DOS 2.1, you have only 18K of program room without the expansion memory.

The standard BASIC for the PCjr is Cassette BASIC. This is a highly versatile BASIC-in-ROM that contains more commands than most other Microsoft BASICs. Almost every command available on the other microcomputers is available on the IBM.

Cartridge BASIC is the new advanced BASIC in the PCjr. It is 32K in size compared to 25K for BASICA. The extra 7K holds many new commands for sound and graphics. Additional commands included in Cartridge BASIC that are not in Cassette BASIC include the following:

1. Commands to set use the internal modem and serial port (including hardware handshaking) for communications to the outside world. The PCjr has a built-in terminal mode.
2. Additional commands using the joystick.
3. Additional commands for using and controlling color graphics. The PCjr has a new alpha-numeric mode of 20 characters horizontal in addition to the regular 40 and 80 column modes. CLEAR sets the video buffer size. PALETTE and PALLETE USING are two new commands for setting colors more easily than the COLOR statement. Another new command, PCOPY, copies from one screen page to another.
4. More commands for using and controlling sound and music. This includes BASICA's 'PLAY' and a new command 'NOISE'. The PCjr has three separately controllable voices.
5. Double precision transendentals. Instead of the normal 7-digit variables, this feature allows 14-digit precision.
6. Commands for using all the available DOS functions from BASIC.
7. More program flow commands.
8. Hardware 'event' commands. This is an 'ON [EVENT] trapping that allows jumping to a subroutine when a particular hardware event takes place, such as the joysticks, the serial port, a light pen, the special function keys or a timed event.

To summarize, the PCjr has more capabilities than the PC senior, and, when the hardware is available, will probably be as expandable. The introductory model is similar to introductory models offered by other manufacturers, enough to get you going, but not enough to do much really useful computing. If you want a good disk system home computer, be sure to get the enhanced version. Don't worry about the keyboard. It will be next to no time before you will be able to purchase an add-on keyboard with real keys.

Upgrade Your Apple!

MICROSOFT

SoftCard System

Digital Research's CP/M™ (Control Program for Microprocessors) is alive and well, and it could be living inside your Apple II/II+/IIe if you had the **SoftCard Plus** system from Microsoft.

Why CP/M? It's the operating system used most often in business, scientific or word processing programs. CP/M data is easily transported from one system to another, either by modem or direct file transfer. And CP/M itself is a powerful programming tool for developing your own programs in BASIC, BASIC Compiler, FORTRAN, COBOL or Assembly Language.

The Microsoft **SoftCard Plus** system includes the 16K RAMcard (to bring your system up to 64K RAM), the Z80 Softcard (4 Mhz), which supports a full 60K CP/M-80 environment and the Videx VideoTerm, an 80-column interface that supplements Apple's 40-column display, producing 80 characters by 24 lines of text or graphics for CP/M and other programs.

The **Sofcard Plus** system also includes the CP/M 2.2 operating system, Microsoft's BASIC, ten utility programs (COPY, CON FIG IO, BOOT, CAT, MFT, PATCH, TURNKEY, APDOS, CPM 60, and UPLOAD/DOWNLOAD), extensive documentation and Thom Hogan's ***CP/M User's Guide***, a concise and complete introduction to CP/M.

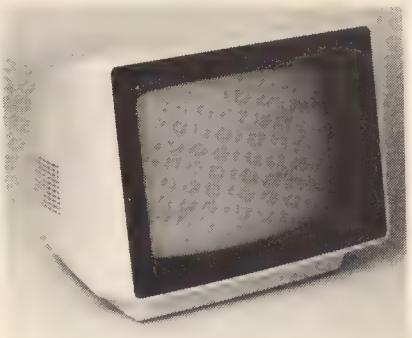
There is also a **SoftCard Plus** system without the 16K RAMcard, for the Apple IIe and Franklin ACE series, which already have 64K.

Join the 60,000 other Apple owners who have installed CP/M on their systems with the Microsoft **Softcard Plus** system.

Microsoft Softcard Plus
System w/16K RAMcard..... **$479.88**
System w/out 16K RAMcard..... **$444.88**

NEC

JB-1205M



Here's a superior amber monitor that features smart styling with impeccable display quality: NEC's **JB-1205M**.

The 12" diagonal screen supports 40 or 80 characters by 24 lines (18Mhz bandwith), with a resolution of 900 video lines at center and 800 lines in corners. Front panel controls include on/off, brightness and contrast; recessed controls for horizontal and vertical are located in the back. The **JB-1205M** accepts composite video i nput (NTSC) from an RCA phone jack (a cable is not included).

We think amber is much easier on the eyes, and that this monitor has one of the best amber "tones" we've seen, neither too yellow nor too orange. The character contrast is sharp, and graphics are quite clear. It s an excellent choice for an amber monitor.

NEC JB-1205M
12" Amber Monitor **$179.88**

DC HAYES

Micromodem IIe

The world outside your computer awaits you, and the costs of admission is $249.88, complete. That's the price of the DC Hayes **Micromodem IIe**, a 300-baud modem/software package for the Apple II/II+/IIe.

The **Micromodem IIe** is an auto-dial/auto-answer type modem board that slides into one Apple slot and connects directly with your telephone line. Once installed, you can communicate at 110 or 300 baud, with a wide selection of data formats (serial, binary asynchronous; 7 or 8 data bits; 1 or 2 stop bits; odd, even or no parity,). **Micromodem IIe** accomodates pulse and Touch-Tone dialing (Bell 103 compatible), full or half duplex operations and full auto-dialing/auto-answering capability.

The Smartcom I communications package controls the modem and fully supports all the hardware features with simple commands. Smartcom I supports Apple DOS 3.3, CP/M 3.0, CP/M Plus and Pascal operating systems. Smartcom I handles auto-dial/answer; stores three phone numbers and one prefix stores the last number you dial; stores communications parameters; create sends, receives, names, lists, prints and delete files; prints files directly; creates a file directory; and transfers files to a Corvus hard disk.

The **Micromodem IIe** comes with a two-year limited warranty.

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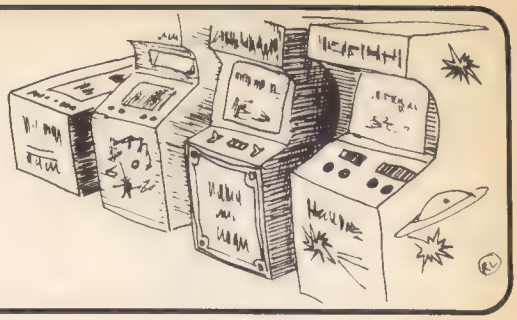

by Allen L. Wold

SPECTATOR SPORT: Beyond the Dragon's Lair

When I started this column with Fred D'Ignazio, back in December 1981, we gave it a rather pretentious title — Not Just Role-playing Games: Computerized Recreation of the Day After Tomorrow. Fortunately our editors decided not to use that title, and we became Entertainment Tomorrow.

Certainly over the last two years or so, I have written about more than just role-playing games. I've also discussed holograms, computerized books and kitchens, bar codes, and most recently the notion of a fully computerized phone system.

For the next three issues at least, I'd like to get back to the original intent of this column: speculations on the future of electronic recreation. I may be mistaken, but I think I've seen the first signs of what could be a new form of mass entertainment. It combines the technologies of television, computer communications, animation and graphics — and arcade games.

Right now, arcade games are essentially a solitary sport. Even most two-player games are really two individuals alternating against the machine, comparing scores. Few games offer true competition between players, with the machine acting only as a moderator. This is more common in home video games and computer games than in the arcades. But there are certain trends that I regard as portents of change.

Competition

In 1983, there were several arcade game competitions, sponsored by arcade parlors, radio stations, stereo stores and others. There were also computer game and video game competitions. Several of the electronic gaming magazines have published lists of players who have sent in verification of high scores, but these competitions were more than that. They were public displays of gaming expertise. They had audiences, perhaps only drawn from the ranks of regular players, but audiences nonetheless.

By itself, that might put arcade competitions on a par with tractor pulls, tossing the caber or curling. Interesting to a few (if we can call forty million game players in the U.S. a "few,") but probably not to a general audience. But the Special Olympics, contests designed for handicapped children, is considering adding electronic games to its repertoire. And not too long ago, I saw something else which holds at least the promise of wider interest.

Every year, the World Science Fiction Society stages a big convention for all fans of science, science fiction, and fantasy. This year's convention (also called WorldCon) was held in Baltimore. Estimates were that nearly 7,000 people attended. I was among them.

One very minor feature of the convention was *Dragon's Lair*, the video disk arcade game from Cinematronics. It stood on the third floor mezzanine, where all the panel discussion rooms were. You couldn't help but pass it, and since I'd read about this marvel of technology, I decided to try a few quarters and see what it was all about.

That was hardly possible. At any one time, *any* time during the day or night, fifteen to twenty people crowded around the machine, watching the one lucky soul try his or her best to guide the knight, Dirk the Daring, through the perils of the dungeon.

You've read reviews of the game by now, perhaps even played it yourself, so I won't go into details. My point is simply that this game drew a crowd of spectators. The lucky ones looked right over the player's shoulder. If Dirk lost all three lives, someone would hand the player another pair

of quarters and rows of quarters sometimes lined the top frame of the machine. One time somebody opened up a whole roll. The game was in constant use, though relatively few people actually played. Most were content just to watch (especially if the player was good), and did not insist on their turn. More than that, a number of people contributed their own money to watch a good player continue, rather than spend it on themselves (assuming they ever got the chance), knowing that, as beginners, they wouldn't get very far, and thus would miss much of the action.

A Sight For Sore Eyes

The big problem was the display. The screen for this game is nearly horizontal, and no more than three people at a time can really see what's going on. The rest have to contend with shoulders and the backs of heads.

As I stood on tiptoe to peer over and around the nearer spectators who constantly shifted into my limited line of vision, I kept wishing that the game screen had been reproduced on a large monitor, as had been done for several other convention events. A 25-inch TV set, placed above eye-level at the back of the room, would have drawn far larger crowds. People *wanted* to watch the game, they just couldn't. More than that, they wanted to watch it being played by a good player, not an amateur.

The graphics are hand-drawn animation, like cartoons. They are extremely well done, but they are not computer graphics. There's a total of 27 minutes of action, taking place in 38 rooms, although some scenes, such as swinging on the rope or paddling past the whirlpool, recycle a few times — if you play well.

Unlike most arcade games, *Dragon's Lair* can be won. At some point, the knight either saves the princess and kills the dragon, or he doesn't. If the game were produced with typical arcade graphics, it might soon lose its audience. Those who mastered it would move on. I suspect that, considered only as a game, *Dragon's Lair* has limited life. But it is a portent of things to come, especially when you combine its implications with several other trends that are beginning to surface.

I see a possible revolution in what we think of as entertainment as we know it, one that could very well challenge the standard concepts of TV entertainment, and could even make contemporary TV programming obsolete. That is, arcade gaming as a spectator sport.

Revolution is perhaps too strong a word. Evolution is more like it, since it will take some time for the elements of the technology, social acceptance and economic factors to develop and converge to the point where they can support spectator arcading.

It is no sure thing, of course. What the public finds fascinating today (hoola hoops) will be boring tomorrow. Good ideas (the Osborne 1 computer) sometimes fail. Some technologies (quadrophonic records) never quite catch on. My perceptions could very well be wrong.

The emergence of a new form of entertainment is a complex combination of ideas, one that is not easy to ponder coherently. For this reason, my speculations in this and the next two columns must be understood to be extremely tentative.

Right now, perhaps, the audience for arcade competitions may be limited to players, but there are millions of them, and their interest can be catered to. I think we will see developments in this arena as the potential for profit — and fame — becomes more obvious.

I suspect that, considered only as a game,* Dragon's Lair *has limited life. But it is a portent of things to come, especially when you combine its implications with several other trends that are beginning to surface.

Video Superbowl

Imagine having a chance to watch a real champ demonstrate his or her skill at your favorite game. Imagine that several contestants are competing, with a substantial prize — perhaps including the game itself — in the offing. Today, arcade games allow high scorers to add their initials to a roster. But, what if this week's *Q-bert* champion were acknowledged in the local paper?

We watch contests on television all the time — game shows with "plain folks," college sports with trained amateurs, or professional events. But how many gamers would be willing to sit through a few commercials to watch the best players in action, and perhaps learn some of their strategies and techniques? Would they be willing to pay to see live action, in an auditorium or theatre? Would competitors be willing to pay an entrance fee for a chance at national recognition? Would sponsors be willing to defray the expense, as they do for Little League, amateur softball, hockey?

These questions are not strictly rhetorical. Though I haven't any answer, I assume that, to a greater or lesser degree, these and related questions could be answered affirmatively. But before arcading can become a viable spectator sport, certain changes must be made in the way the games are played and shown.

The first problem with arcade games, as I have said, is that they are not designed for spectator viewing. Today's display format may be perfectly fine for the person playing, but the screen is hard for others to see. Right now, there is little reason to consider the spectators, since they don't pay money to watch. But with the growing interest in arcade competitions, and with the development of display technologies that are fascinating to watch, this situation might change.

So far, arcade or computer game contests, have been held in auditoriums or large rooms where people watch from nearby seats. The simplest way to improve spectator visibility would be to connect the machine to secondary screens that could be placed more advantageously. Had this been done with *Dragon's Lair* at WorldCon, hundreds, not just tens, of spectators would have gathered around.

Once this is done, there's no reason why the screen image couldn't be broadcast over regular television channels. (The only problem might be a matter of resolution, due to bandwidth, but the action of *Dragon's Lair* could certainly be shown in the same manner as cartoons.) Televising such a competition would offer different possibilities and have different limitations.

For example, as with many game shows on television today, there might be a studio audience. Their only advantage over the home viewer would be that they could actually see the player in action, at the controls. This perspective would be lost to the TV audience without split screening, which would interfere with the playfield image.

Once the playfield is made visible to the audience (whether live or home viewers), the quality of the graphics would have to be top-of-the-line, either traditional animation or computer generated. After all, it was the first-rate animation that drew the spectators to the *Dragon's Lair* game. Such high quality graphics would certainly make the machines and games more expensive (it costs fifty cents, not a quarter, to play *Dragon's Lair*), but if the game drew a paying audience, or program advertisers, cost would not be a problem. With a large enough audience, there would be no reason to spend less on a good spectator arcade game than on a quiz show set.

Similarly, the use of sound could be im-

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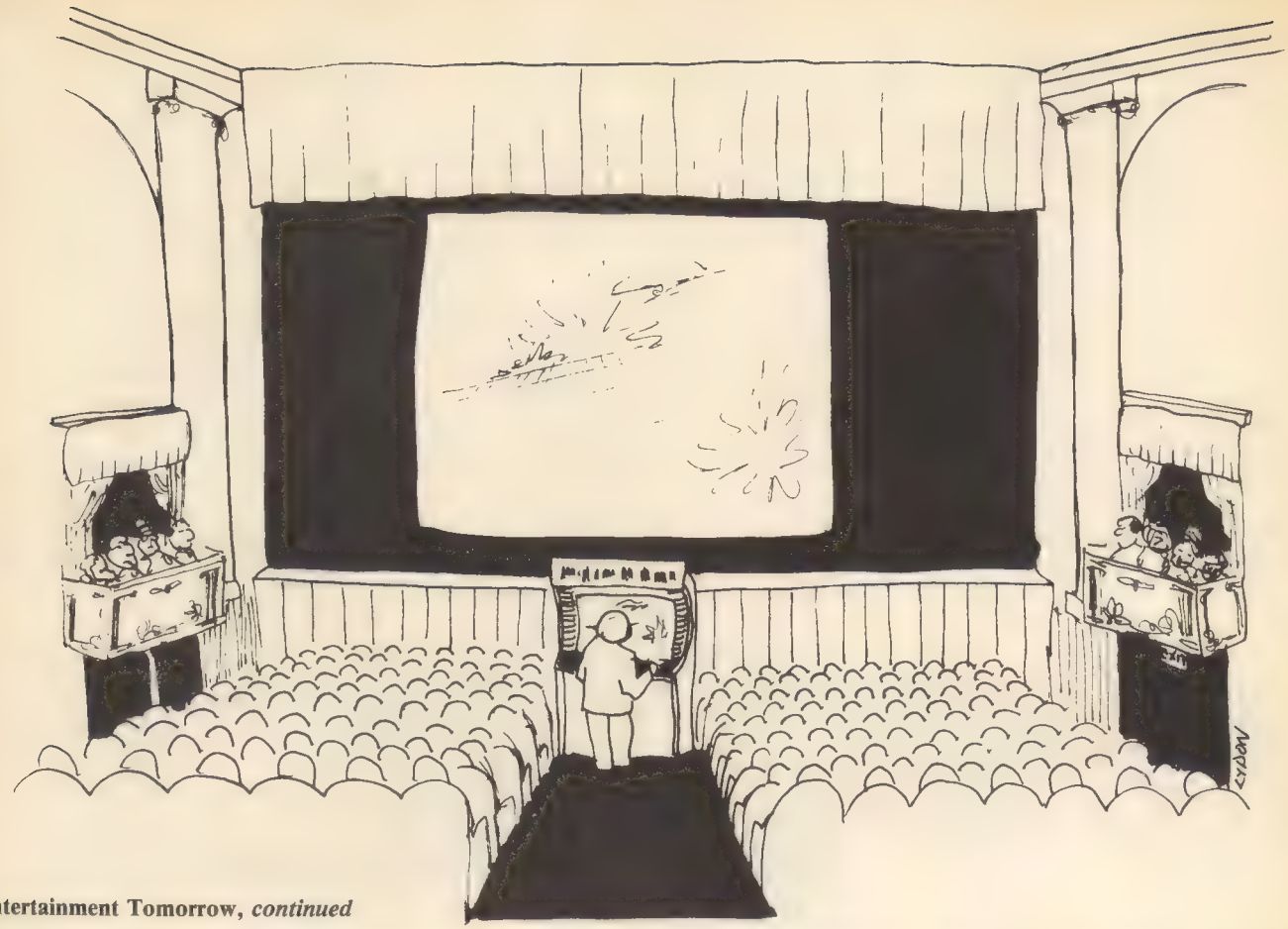


proved considerably. Simple sound effects are fine in some cases, but with the advent of voice synthesizers and music synthesizers, much more realistic sound effects — even dialogue between the player and the machine — should be possible.

Action

The action of the game would need improvement, not from the player's point of view, but from the spectator's. The excitement of playing *Space Invaders* derives from the fact that it is *your* hand on the buttons or joystick, it is *your* perception and coordination shooting down the aliens. Watching somebody else play *Space Invaders* can be exciting, but it lacks that extra something.

Joust, on the other hand, has almost enough action to incite people to watch, though perhaps it moves a little too fast for a spectator to follow easily. If the emphasis were subtly shifted from the pure hand-eye coordination needed to master a few simple actions, to the mental alertness necessary to deal with a variety of action situations, the game would become even more intriguing.

With improved graphics, the improved action would certainly follow. Pitfall Harry can run, swing, jump, climb a ladder. Dirk the Daring, on the other hand, does all this and more — he swings, runs, jumps, climbs, paddles, opens doors, looks around, wields a sword, flinches, exults . . . Controlling him is no more difficult than controlling Harry, there's just more he can do.

Even when their actions are similar, they're not the same. It's one thing to see Pitfall Harry swing from a rope — watching Dirk, in *Dragon's Lair*, do it is something else. Watching him paddle his tiny boat around the swirling whirlpools is even better. Harry is a stick figure. Dirk is (almost) a real person, despite his cartoon appearance.

Another not so obvious problem with arcade games is that most playscreens are really rather cramped. In a movie, we see not only the characters, but quite a bit of the background. There are close-ups, of course, and tight action shots, but movies are usually filmed and edited to give the viewer some idea of the physical and visual context in which the action takes place.

Again, *Dragon's Lair* is a good example of the possibilities here, but it could be taken further. In order to capture and hold viewer interest, the scenes should be created from a cinematographic point of view — that is, does the scene itself make a good picture?

Some games, like *Battle Zone*, put the player right in the action. I prefer this kind of graphic point of view myself, but it would be inappropriate for a spectator game. We can assume, I think, that what the audience will see on the screen is a representation of the player, as in movies where we see a representation of the character as portrayed by an actor.

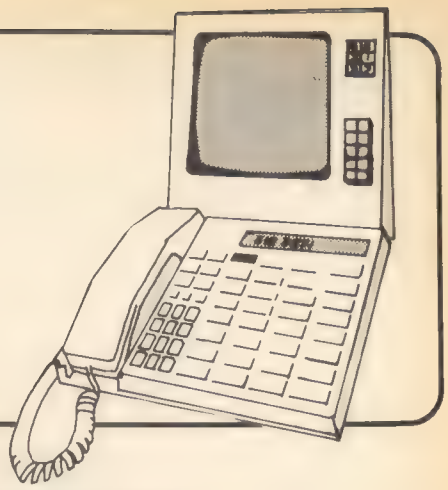
Which raises an interesting possibility. We can identify with the actor in a movie because he or she is easily distinguishable from all other characters. Likewise, in most spectator sports, fans prefer one player over another. Watching several people play *Dragon's Lair*, however, gives us no clue to the identity of the player. Dirk is always Dirk, no matter who's at the joystick. To further improve the game as a spectator sport, there should be some way to distinguish the actors, so that when Rich Bouchard plays, we know it's he and not Arnie Katz.

With traditional animation techniques, this might not be easy or practical, but with computer graphics, the central character could assume any distinguishing characteristics desired. Not just any old ship zipping through tunnels, zapping spiders and eggplants, but one with special configuration and marking. We always knew which TIE fighter was piloted by Darth Vader.

There is more, of course, to making an arcade game a spectator sport, and I will go into that in my next column.

ON THE WIRE

by Katherine Ackerman



Online Literature Retrieval Systems: Getting Started

Online database searching offers something for everyone — the business-person trying to spot industry trends, the parent helping with homework, the physician seeking information to support a suspected diagnosis, the university student writing a thesis, the continuing scholar persuing an interest.

Hundreds of databases offer computerized indexes to journals on virtually any subject. Others can provide the full text of newspaper or magazine articles; and still more offer financial information on companies or directory information for individuals, businesses or associations.

If you do not search online already, it takes very little to become an experienced online searcher. Here, then, is a checklist of what you need to begin.

✓ Do You Have The Right Equipment?

You need an ASCII-coded personal computer or word processor which has terminal software, and a serial interface. You also will need a telephone and a modem. To read your results, you will need a monitor (or TV) or printer, but you won't need both (a printer is highly desirable). There are some very inexpensive portable terminals with built-in printers and acoustic couplers for under $2,000. Personal computers priced under $800 also can be made to communicate.

✓ How To Select A Vendor

Start by writing to all the vendors of bibliographic and non-bibliographic databases, asking for free information about their services. After you receive their lists of databases, read about those which interest you and write to *their* producers, asking for journals lists. Compare costs, hours of availability, baud rates allowed, and the number of other databases available from that service.

✓ The Password, Please?

Once you've selected a vendor or two, fill out the forms they send. You will then receive a password. Also, consider whether the vendor charges a sign-up fee or charges only for use. Subscription fees charged against future use are common; they give you some time to get acquainted with the system. In most cases there will be clear instructions for getting online.

✓ Getting Trained

One consideration in selecting a vendor is how much time and money you are willing to spend for training. To become an efficient *Dialog* searcher (and efficiency is important at $75 per hour!), you really need to attend a training session. *Dialog* offers these across the country. They last one and a half days and cost $135. It does take some time to master *Dialog*, considering that there are over 50 commands you can use! With *BRS After Dark* or *Knowledge Index*, though, you train yourself on free time covered by your sign-up fee. With those systems, there is much less to know in order to search effectively, but you don't have nearly the flexibility that you do with the more complex systems. Be sure to ask the vendor whether the smaller home user systems contain the complete databases or only subsets.

✓ Learn How The Database Is Constructed

The indexing and the way the abstracts are produced will affect the way you search. Take some time to become familiar with the printed materials of both the vendor and the individual producer of the database. Different systems have different searching languages and protocols, and you may have to study diligently if you plan to use more than one system. Mastering just one of the systems designed for personal computers should not be difficult, though.

✓ Design A Search Strategy

If you are searching one of the larger systems such as *Dialog*, you will want to keep paper and pencil handy. Write down proper or company names; decide how you will truncate or expand your search; and develop two alternative strategies — one to use if your postings are too numerous, the other to use if your postings are too few.

Logging On

It's easy if you follow the instructions sent to you by the vendor. The basic steps are the same for all the bibliographic utilities. First, select a local phone number from one of the lists provided by the vendor for the telecommunication services, such as *Telenet, Tymnet* or *Uninet*. This is your way to connect with the vendor's computer without making a long-distance phone call. Most major telecommunications charges range from $6 to $l0 per hour and are billed through the vendor. After dialing in, a tone will indicate when to place the phone in the acoustic coupler or modem. You will see a connect message on your screen. Follow the directions on your sign-on sheet, supplied by the vendor.

✓ Avoid the TTs!

Even professional database searchers sometimes get nervous while searching online. In the research community it's called TT, or Terminal Trembles. If you get flustered or tangled, you can always logoff, revise your strategy, and give it another shot.

The Rise of the Computer State

Reviewed by Douglas Keljikian

In his book, *The Rise of The Computer State*, David Burnham has written a fascinating and provocative study of the computer's impact on our rapidly evolving society. His thorough clinical, social and legal research is presented in a concise, informative volume that poses some frightening questions about the integrity of an individual's rights and personal security. Mr. Burnham carefully examines how the computer, that "unique metaphor of our time," enhances the power of bureaucratic structures, threatens our privacy and affects our values.

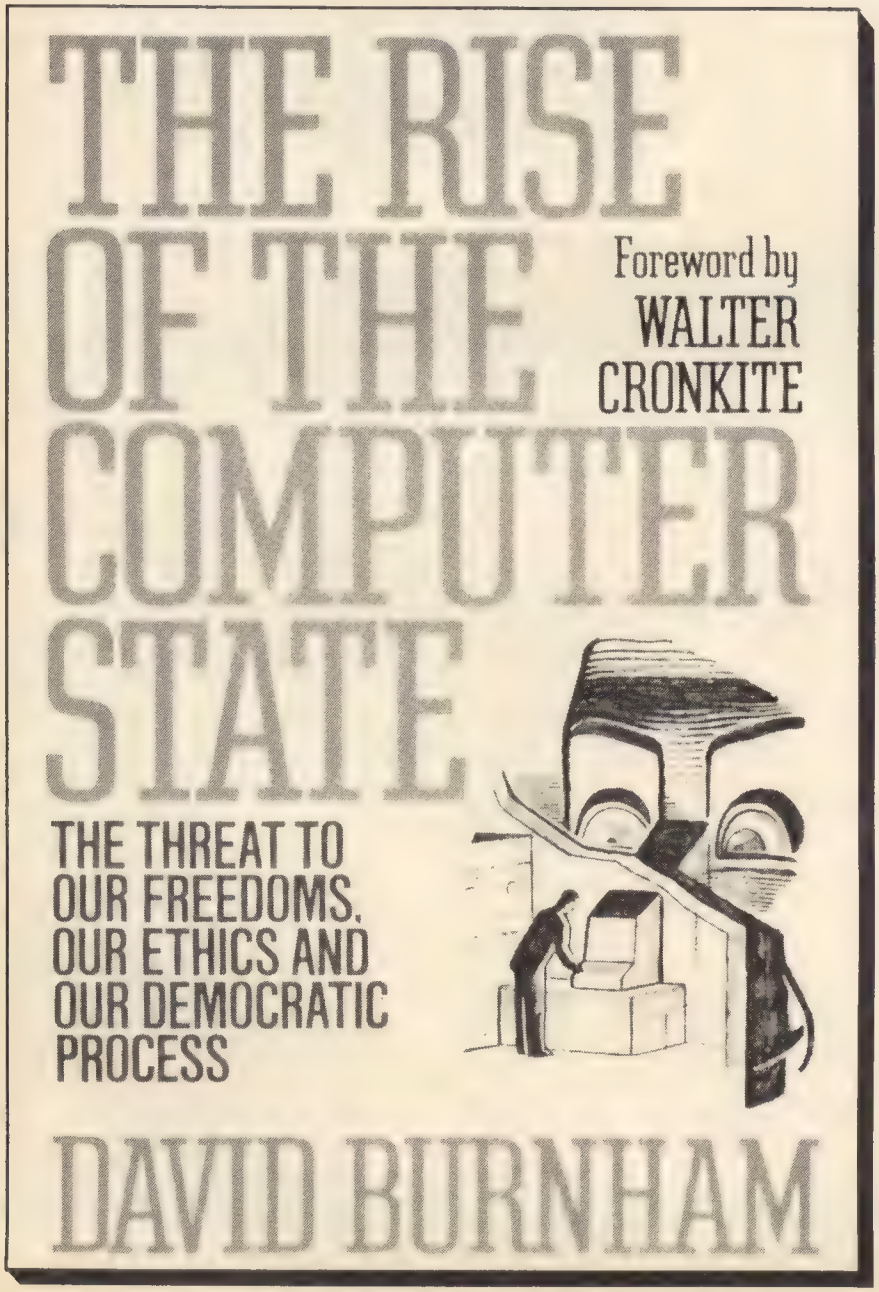
Americans have for the last two centuries regarded technological advancements as "progress," with all of its connotations of a richer and better world. As the power of large public and private institutions increases in relation to the individual, serious social problems can arise. Too often, personal, ethical and philosophical standards are compromised when bureaucracies adopt procedures to increase efficiency.

The most essential change wrought by the computer in American life is its encouragement of government, large corporations, and other major institutions to collect and store astonishingly detailed information.

Previously, with manual filing systems, it was impossible to maintain such data. The cost to sustain such a system — in terms of space and personnel — exceeded the resources of even the largest institutions. Computerization has significantly decreased the "economic disincentive to inspect the files" by affording more large organizations the technology to collect and retrieve valuable data at the push of a button. Those who tend these electronic files wield enormous power.

The capacity to collect and use information is a mixed blessing. The same technology that can chart the frequency, distribution and effects of diseases toward cures can help those who would chart our activities to facilitate an oppressive environment. Sometimes, information initially used for one intended purpose is stored and later used for other, unrelated objectives. The purest motives of any organization can easily be lost in the practicality of political and economic expediency.

One obvious application of these systems is tracking down people. In California, for example, federal agency computers from the IRS, Social Security and Motor Vehicle Bureau were linked to trace divorced parents who are delinquent in paying child support for their needy dependents. The District Attorney acquired employment earnings slips and motor vehicle data to deny tax refunds to the negligent parents. Although over ten million dollars was returned to offset the taxpayer's burden of child support in only the second year of this program, we must realize that similar procedures could be used by a malevolent government to locate people who are in disfavor for other reasons.



by David Burnham (Random House). Suggested retail price: $17.95.

Caveat Emptor

Private industry also collects staggering amounts of information. The five largest credit card companies alone have over 150 million files. The insurance, health, and telephone industries all retain a wealth of personal data. Much of this information is "transactional" — not simply who and what we are, but also the when, where and

how of our daily lives. The problem is that this information is compiled by interacting computers that are capable of noting many routine activities such as the checks we cash, the phone calls and purchases we make, even what television programs we watch. Our movements, activities, and profiles exist in the computers of industries ranging from airline companies to top level government agencies.

We must wonder who possesses the wisdom and the compassion *not* to abuse this information. Since humans are imperfect, and machines lack the power to understand or respect humanity, strict regulation of data repositories is necessary. Arbitrary labeling of humans in predetermined categories is never complete, accurate or just. The danger escalates when those in power legitimize the use of such limited information as a gauge for making decisions about humanity.

During the last few years, law enforcement agencies have sought to use computer technology to develop a centralized database and a massive network of all criminal files. Many factors make this network undesirable and dangerous. Variations among state laws, local customs, arrest policies, and frequently inaccurate or incomplete documentation make any federal standardization of files unfair to citizens. Computerized files can be misleading when they contain only accusations and no indication of dismissed cases, acquittals, sentence information, or any mitigating statements from the courts. When a federal board compared FBI files to state records, they found surprisingly low accuracy and high ambiguity. Less than one half of the FBI files were accurate and up to date. Law enforcement agencies should concentrate on eliminating conditions conducive to crime, rather than allowing questionable reports to influence our justice system.

Just who receives these computerized "rap" sheets? Mr. Burnham suggests that if state licensing boards, corporations or universities have access to this information, as they could through automatic interfacing of computers, widespread discrimination could create a "criminal class" of permanent unemployables.

Sovereign States

With this example, Mr. Burnham raises a profound question about the relationship of the federal government to the sovereign states: "Will a computerized information system that is meant to serve the Judicial branch of government, but is controlled by a police agency in the executive branch, undermine the system of checks and balances established by our constitution?" The author suggests that such delicate information should be controlled by a non-law enforcement agency or by a consortium of states, thereby separating the system and encouraging more human interaction. Perhaps, also, the nature of the files should be changed to include only information about current crimes or outstanding warrants. There are no shortcuts or wholly calculative methods for better law enforcement; laws are made by humans and the complexity of the enforcement process should be more thoughtfully considered.

Arbitrary labeling of humans in predetermined categories is never complete, accurate or just. The danger escalates when those in power legitimize the use of such limited information as a gauge for making decisions about humanity.

Power is the ability to collect, retrieve and analyze large amounts of information about current and past activities, and the opinions and characteristics of individuals or groups. Statistically reliable information can be developed to predict future behavior and influence people. In 1978 a marketing company in Missouri was retained by state union leaders to help defeat a controversial "right to work" initiative, which called for the elimination of mandatory union dues and would have ultimately weakened labor's bargaining power. Polls showed that about two-thirds of the state's voters favored this reform until labor waged a successful campaign, using covert methods, to reverse the percentages and soundly defeat the bill.

Geodemographics (grouping people by economic and social characteristics determined to be essentially stable in neighborhoods) was the prime research tool used to target specific social class audiences. Census information about individuals' income, education and make-up was analyzed to create a social scale and calculate the needs of different segments of the population. The marketing company purchased almost 1.5 million resident telephone numbers from a commercial supplier, matched these numbers to registered voter lists, and began contacting thousands of voters. Geodemographics afforded sufficient information to formulate eighteen different letters for direct mail, and to launch a comprehensive door to door and telephone campaign. The computer also determined which households should receive which information. In fact, each step of the campaign was dependent on the computer's ability to organize and coordinate voluminous data. A project of similar magnitude could never have been accomplished manually.

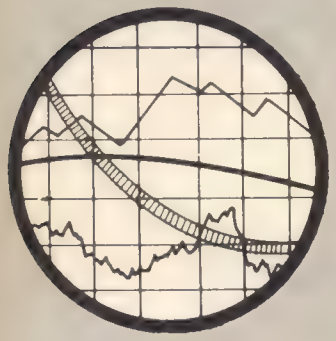
There are many dangers inherent in this campaign scenario. Systematically targeted programs and packaged audiences serve only as one way mirrors. Their account of the issues is limited to the aims of the campaigning organization, and they often exclude segments of the population from the decision making process. Since the content of disseminated information is selective rather than comprehensive, the range of choices for the individual is significantly diminished.

Who Decides

Important issues of humanity cannot be decided by formulated electronic expressions of data. Computers can ask only certain kinds of questions and retain only finite and static information. Often, we wrongly find confidence in the "calculability of reality" when decision making becomes complicated. By choosing to judge ourselves in these limited terms, we erase much of our humanness and are forced to react to arbitrary data. If a congressman feels, for example, that he must follow the established order and only foster a "safe" image, how effective can government be? If individuals are fearful of engaging in political activity, where are constitutional rights? When forced order dominates all other considerations, individual freedom and rights suffer.

Although Mr. Burnham purports no concrete answers, he does offer some sensible suggestions aimed at lessening the threat to personal autonomy: availability of technological measures to insure phone privacy, individual control of medical records on microfiche, adoption of laws and procedures to limit the disclosure of data, and improved social planning to cope with unemployed people whose jobs have been taken over by sophisticated machines. In his absorbing, nontechnical study, Mr. Burnham asks many important questions about man's place in his technologically evolving society.

CALC SIDE



by David Peters

The VisiCalc® Spreadsheet Comes Home

Scheduling With Visicalc

Ever had to plan a meeting? If you are in business or involved with charitable or other outside activities, this is a common problem. So you'll be happy to learn that there is a seemingly simple, yet very powerful template to make this chore a lot easier.

Let's say you've booked the hotel or meeting room, ordered the lunch and entertainment, and obtained a list of speakers or events. Now you have to make sure there's time for everything.

If you try to do it on paper, you'll have to erase and count the time on your fingers as things change. Your first speaker tells you that he needs an hour, not the forty-five minutes you allotted — but that makes lunch too late. Your chairman says he'd like to speak at the luncheon, so instead of half an hour, you have to make it an hour . . . and so it goes.

The illustration (see Fig 1.) shows how this model can help. With just a few entries, you can see when everything will be scheduled. With a few more entries you can chop and change to your heart's content.

By the way, the model can do much more than just plan meetings, as you will see. You can plan an athletic meet, a disco program or an open house. The common characteristic is a series of events with variable durations, each requiring a specific start time. To use the model you need to know only three things:

- What time the day's program or sequence starts;
- How long each "event" will be;
- How long the breaks between events (if any) will be.

Let's take a quick run through the model before we get to formulas. First, list all the events to the right (in our model columns I through L) in a sequence, *any* sequence, just to provide a first shot at an agenda. You know that lunch will be somewhere in the middle and, of course, cocktails and dinner will be at the end, but everything else can be wherever you think it *might* fall.

At the top, opposite "opens," put the time that the event commences, in our case, 8:15 am. Down the left side, opposite each event, enter the length in minutes, and in the next column (B) the amount of time, if any, allowed between events. This way, you can budget for setup time, if necessary (to set up a slide projector, for instance). Naturally, if no extra time is required, as between the end of a speech and the beginning of a coffee break, then a zero is entered.

Just one recalc gives you the program schedule, with correct start times for each event, ready for printing. If the first try doesn't suit you, you can "what if" and move things around until you come up with something more suitable.

The Formulas Do The Work

The column headings speak for themselves. We have separated the necessary calculations across several sequential columns for ease of understanding, but it would be quite simple to combine some of them into larger, more complex formulas. Instead, we let VisiCalc do the work!

To be sure everything is clear, note that "start cume" is the accumulated minutes elapsed to the start of the current event (i.e.

Figure 1: The Schedule Planner Model.

	A	B	C	D	E	F	G	H	I	J	K	L
1	MEETING PLANNER.					opens:	8.15			MEETING SCHEDULE.		
2	event	break	start	mod		start						
3	length	after	cume	cume		hr mod	min		Event			starts
4												
5	10	0	0	0		8 8	15		Introduction			8.15
6	60	0	10	25		8 8	25		First Speaker			8.25
7	20	0	70	85		9 9	25		Coffee Break			9.25
8	60	10	90	105		9 9	45		Second Speaker			9.45
9	60	0	160	175		10 10	55		Third Speaker			10.55
10	60	0	220	235		11 11	55		LUNCH			11.55
11	50	5	280	295		12 12	55		Seminar 1			12.55
12	50	0	335	350		13 1	50		Seminar 2			1.50
13	20	0	385	400		14 2	40		Coffee Break			2.40
14	50	0	405	420		15 3	0		Seminar 3			3.00
15	120	0	455	470		15 3	50		Close			3.50
16	90	0	575	590		17 5	50		RECEPTION			5.50
17	180	0	665	680		19 7	20		Dinner			7.20
18	10	0	845	140		10 10	20		Disperse			10.20
19	10	0	855	150		10 10	30					
20	10	0	865	160		10 10	40					

the one whose row we are on), the "mod"-ified cume handles a program that is longer than twelve hours, the "hr" is the European or twenty-four hour clock digit, the "mod"-ified column corrects after noon-time, and the minutes are actual sixtieths of an hour.

Fig 2. lists the key formulas that "do the magic" in this mode. They are listed in the order they occur. Naturally, those on Row 6 are replicated down the column. A tip to make sure that you get the (R)elatives and (N)o changes right: If the expression is on the same row that you are on, it's relative; if it's on any other row, it's no change.

On the top row, the zeros in coordinates B5, C5 and D5 are hard entries — they are required to stay zero. The rest of the formulas are simply a bring down of the start time entered in G1, with the formula in G5 taking just the minutes part, if any.

The real work starts on Row 6. Column C accumulates the elapsed minutes in the program up to the start time of the current event, the one whose row we are on, by adding the length of the preceding event, the break time if any, and the last cume.

Peculiar things happen if a program is over twelve hours long, so we must be prepared to modify this cumulative number. This happens in Column D. Look at the formula in D6: The second part of it, after the plus sign, checks the cume figure in Column C to see if it is greater than 720 minutes, or twelve hours. If so it subtracts 720, if not, the minutes are unchanged. The first part of the formula brings down the start time minutes, so that we are always figuring from the hour.

In Column E, we determine whether we are in the first hour of the meeting. Is the cume greater than or equal to 60 minutes? If it is, then we bring down only the integer portion, the hour, from the "opens" time above. If not, we bring over the hour, unchanged.

In Column F, we convert from European time, the twenty-four hour clock, to the more familiar twelve-hour system. If the previous column digit is thirteen or higher, deduct twelve. However, if it is higher than 24 hours (check with a nested @IF statement) we deduct 24.

Now we figure out the minutes past the hour. This can be done with an @LOOKUP table, but we prefer the neater @CHOOSE method, which may look long and complicated but is really quite simple.

First, we check again for the first hour, telling VisiCalc, "If the hours figure in Column D is less than 60, insert it here. If not, work out what the integer of the figure would be after dividing it by sixty, then

Figure 2: The Key Formulas.

```
>A5:10
>B5:0
>C5:0
>D5:0
>E5:/FI(G1)
>F5:/FI(G1)
>G5:/FI(G1-@INT(G1))/.01
>L5:/F$(G1)


>A6:60
>B6:0
>C6:(A5+B5+C5,
>D6:(G1-@INT(G1)/.01)+@IF(C6>720,C6-720,C6)
>E6:/FI@IF(D6>=60,(@INT(D6/60))+G1,E5)
>F6:/FI@IF(E6>=13,@INT(E6-12),@INT((@IF(E6>24,
   E6-24,E6)))
>G6:/FI@IF(@INT(D6)<60,D6,+D6-(@CHOOSE(@INT(D6/60),
   60,120,180,240,300,360,420,480,540,600,660,720,780)
>L6:/F$+F6+(G6*.01)
```

Calc/Side, *continued*

count out down the list and subtract from it the amount you find." VisiCalc comes back with a figure representing the minutes past the hour when the event will start.

Finally, in the actual meeting schedule, the time is re-composed by adding the modified hour and the minutes, first multiplying the minutes by .01 to get the decimal format for the printout.

Fixing Up the Final Schedule

Once you have done the necessary recalc to produce the final times, then you can further modify the schedule to add detail. In Fig. 3, you will see that the Chairman did, indeed, speak at the luncheon — we typed in the details by inserting a few rows with the /IR command. We furnished details of the reception and dinner in a similar manner. No need to have the schedule typed . . . it's ready to send to the copy machine for distribution.

When Things Change

If your first stab at the schedule doesn't quite work out — for instance, your first shows lunch starting at about 11:30, which you feel is too early — you may want to try changing the length of the morning events. All you have to do is change column A. An unexpected requirement for more set-up time before one of the events can be tested by adding time to column B opposite the event.

What about moving something entirely to another part of the schedule? Just use the /MOVE command to lift it out and put it somewhere else. Just remember that VisiCalc /MOVES a row without changing the relative coordinates, so you will have to correct the Row 6 formulas by re-replicating them down the columns.

A Free Offer!

We like to get your letters because they tell us what you'd like to see covered in this monthly column. To encourage you to write, we have a "free offer." For every suggestion of an application we receive, we will send the writer a disk (please specify whether it is for Apple® II+ or IBM® PC SSDD: these are all we can supply) with all the templates that we have prepared for our ***SoftSide*** monthly columns, ten so far. Your back issues file will be your manual. All suggestions will be acknowledged in the article using the idea. Don't worry if you think that VisiCalc cannot do what you want — we accept the challenge!

Figure 3: Formatting For Printing.

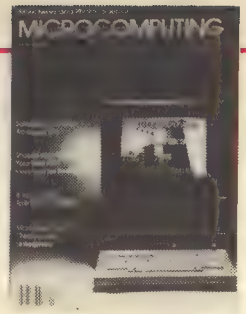
This area is printed out

MEETING PLANNER. opens: 8.15

event length	break after	start cume	mod cume	start hr	start mod	min	Event	starts
10	0	0	0	8	8	15	Introduction	8.15
60	0	10	25	8	8	25	First Speaker	8.25
20	0	70	85	9	9	25	Coffee Break	9.25
60	10	90	105	9	9	45	Second Speaker	9.45
60	0	160	175	10	10	55	Third Speaker	10.55
60	0	220	235	11	11	55	LUNCH	11.55
							Speaker: Mr.Fred Brown	
50	5	280	295	12	12	55	Seminar 1	12.55
50	0	335	350	13	1	50	Seminar 2	1.50
20	0	385	400	14	2	40	Coffee Break	2.40
50	0	405	420	15	3	0	Seminar 3	3.00
120	0	455	470	15	3	50	Close	3.50
90	0	575	590	17	5	50	RECEPTION	5.50
							Cocktails (Lounge)	
180	0	665	680	19	7	20	Dinner	7.20
							(Main Ballroom)	
10	0	845	140	10	10	20	Disperse	10.20
10	0	855	150	10	10	30		

MICROCOMPUTING

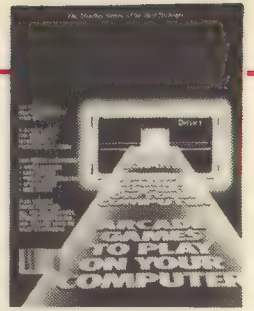
January 1984, Volume VIII No. 1



Microcomputing is published monthly by Wayne Green, Inc., 80 Pine St., Peterborough, NH 03458.

PERSONAL SOFTWARE

January 1984, Volume II, Number I



Personal Software is published by Hayden Publishing Company, Inc., 10 Mulholland Dr., Hasbrouck Heights, NJ 07604.

POPULAR COMPUTING

January 1984, Vol. 3, No. 3

List of Publications Indexed in This Issue:

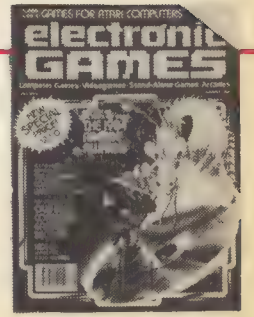
POPULAR COMPUTING, (continued)

January 1984, Vol. 3, No. 3

Popular Computing is published by McGraw-Hill, Inc., at 70 Main St., Peterborough, NH 03458.

ELECTRONIC GAMES

January 1984



Electronic Games is published by Reese Communications, Inc., 460 West 34th Street, New York, NY 10001.

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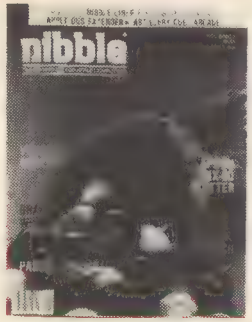
NIBBLE

January 1984, Volume V/Number 1



Nibble Magazine is published by MicroSPARC, Inc., 10 Lewis Street, Lincoln, MA 01773.

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SKY & TELESCOPE

January 1984, Vol. 67, No. 1

Sky & Telescope is published by Sky Publishing Corp., 49 Bay State Rd., Cambridge, MA 02238-1290.

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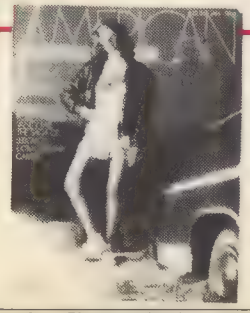
AMERICAN PHOTOGRAPHER

January 1984, Volume XII, No.1



American Photographer is published by CBS Publications, the Consumer Publishing Division of CBS,Inc., at 3807 Wilshire Blvd., Suite 1204, Los Angeles, CA 90010.

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COMPUTERS & ELECTRONICS

January 1984, Volume 22, Number 1

Computers & Electronics is published by Ziff-Davis Publishing Co., at One Park Avenue, New York, NY 10016.

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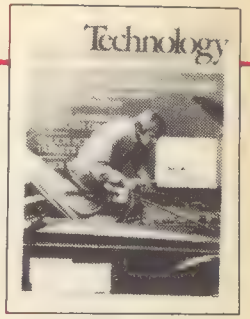
HIGH TECHNOLOGY

January 1984, Vol.4, No.1



High Technology is published by High Technology Publishing Corp., 38 Commercial Wharf, Boston, MA 02110.

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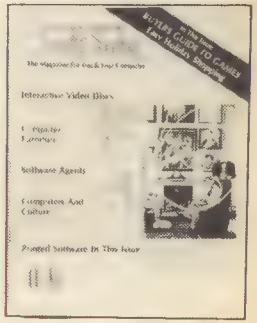
SOFTSIDE

January 1984, Issue 46



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SOFTSIDE, (continued)

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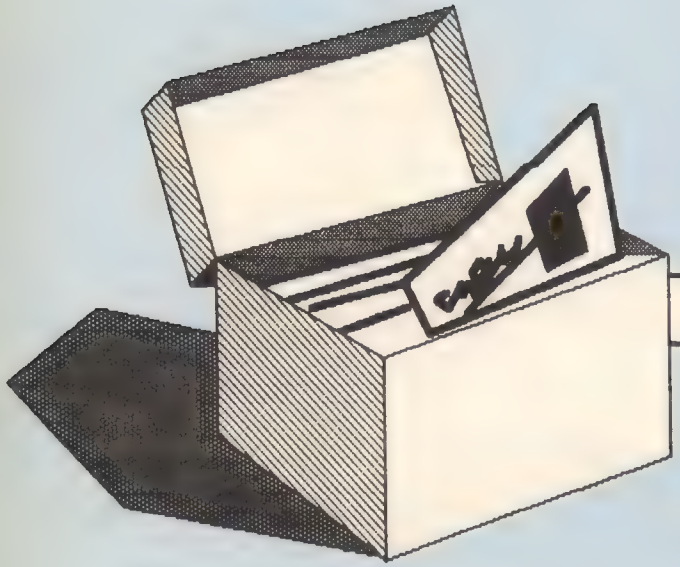

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PROGRAM DEVELOPMENT ON THE FARM

By Dick Landis

Many farmers who pioneered on-farm computer applications in the late 70's had no choice but to become programmers. There was no farm software available. They just hunkered up to their Apple Plus or Model I computer and whiled away the days and months learning to write Basic. The next generation of farm computer users owe these fellows a real debt of gratitude. They, not the professional programmers, are the ones who developed and debugged most of the agriculture software available today.

Some of the new breed of farmers share this desire to do it themselves but lack the time, ability, or discipline to master Basic or machine language programming. Program development software is the answer for them. The two major program development tools for farm applications are the spreadsheets and the data base management programs, available from local dealers and usually found in the Software Top Ten.

Electronic Spreadsheets on the Farm

Of all the exotic and expensive custom software available for the farm market, the most popular and useful programs turn out to be standard, off-the-shelf spreadsheet packages like Visicalc or Supercalc. Newer, more sophisticated programs that increase flexibility at some cost in additional complexity are Multiplan and Lotus 1,2,3.

Visicalc and Supercalc are still the most widely used of the several spreadsheet programs on the market. Their similarities far exceed their differences. They both run on most computers currently available. Radio Shack advertising goes so far as to say: "Visicalc is so effective that if no other computer program existed, Visicalc alone would justify your owning a TRS-80." Apple and IBM PC, the other big on-farm computers, run Supercalc, Visicalc, and all the Visicalc derivative products that take advantage of their graphics capacity, such as Visi-Plot and Visi-Trend.

Why So Popular?

Why are the spreadsheets such productive management tools for farmers? First, the programs are so universally used by the agriculture industry that Visicalc models are available from AG schools, County extension agents, AGNET, and often a neighbor down the road. These models or templates are usually designed to fit particular applications. They can be copied as they stand, or readily modified to meet specific needs. This way, programs can be up, running, and producing relevant data as soon as you plug in the numbers.

There are literally thousands of these farm-related models around. Orchardists, dairy farmers, cattle ranchers, and row crop farmers have their own versions of cash flow analysis, crop trade-offs, or production budgets. Almost all are willing to share their efforts.

Secondly, the models require no programming skills. You can learn to use the system and create your own models in six or seven hours. The documentation and education manuals that come with the programs give you step by step training, so you can do something meaningful right away. Common applications, simple even for a beginner, are break-even analysis, herd books, field records, maintenance inventories, and simple budgets.

How it Works

The example in Figure 1 provides production and cost comparisons to determine profitability of a field or crop.

Cash Flow Budgeting is a natural for spreadsheet analysis. The sample cash flow analysis in Figure 2 follows the PCA budget format closely. As you can see, it could serve as a powerful planning and management tool.

Livestock budgets also are a handy application, measuring even slight changes in feed costs, cattle prices, and interest rates. Such up-to-the-minute data puts you in a much better position for the marketplace. A model of feeding costs that tracks month-to-month input permits "What If" analysis on such situations as culling, feed costs jumping 10%, or cattle prices dropping $2. You know your options and can plan and act accordingly.

Another area that is pure drudgery for most of us is the year-end preparation of depreciation schedules for our income tax returns. Spreadsheets handle this chore with ease. Just plug in new tax formulas by punching a few keys and the program updates every related number in seconds.

Though not the complete answer for all database applications, the electronic spreadsheets are so flexible and powerful that you can't afford to be without them. There is almost always an immediate payoff in cost savings.

Data Base Management on the Farm

Next to the "electronic spreadsheets," data base management software is the second most powerful, practical computer program available to the farmer. Most of the standard farm software applications such as herd records, machinery inventories, crop or field histories were developed using a data base management system (DBMS).

The DBMS program enables the non-programming farmer to design his own record-keeping and data reporting systems at a much lower cost than custom or off-the-shelf packages. There are many data base management programs on the market, and most of them fit a wide variety of

Figure 1:

PROFITABILITY OF DIFFERENT FRUIT BLOCKS

	Block 1 Spurs	Block 2 Standard	Block 3 Goldens	Totals
Acres	35	55	30	120
Bins/Acre	65	40	60	
Totl Bins	2275	2200	1800	6275
Price Bin	125	125	90	
T.Returns	284375	275000	162000	721375
Costs:($)				
Prune/Ac.	250	300	350	
Pick/Bin	11	11	12	
Thin/Ac.	90	70	540	
Oth.Cst/A	600	600	700	
Tot.Cost	57925	77550	69300	204775
Gr.Profit	226450	197450	92700	516600

Figure 2:

FARM CALCULATION		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
OPER. RECEIPTS														
LIVESTOCK	HOGS	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000
	CATTLE	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	24000
	SHEEP	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000
CROPS	CORN	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000
	BEANS	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000
	WHEAT	0	0	0	0	0	0	0	0	0	0	0	0	0
	HAY	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT CASH OPER RECP		6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	72000
CAPITAL SALES														
BREEDING ANIMALS		0	0	0	0	0	0	0	0	0	0	0	0	0
MACHINERY		0	0	0	0	0	0	0	0	0	0	0	0	0
TOT. CASH CAP SALE		0	0	0	0	0	0	0	0	0	0	0	0	0
NON-FARM CASH		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000
TOT CASH IN		7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	84000
OPERATING EXPENSE														
FEEDER LIVSTK PUR.		800	900	800	800	800	800	800	800	800	800	800	800	9600
LABOR HIRED		0	0	0	0	0	0	0	0	0	0	0	0	0
REPAIRS:MACHINERY		0	100	0	0	0	0	0	0	0	0	0	0	100
	BUILDING	500	0	0	0	0	0	0	0	0	0	0	0	500
	FENCE	0	0	0	0	0	0	0	0	0	0	0	0	0
RENT & LEASE		200	200	200	200	200	200	200	200	200	200	200	200	2400
FEED		300	300	300	300	300	300	300	300	300	300	300	300	3600
SEED		0	0	1000	0	0	0	0	0	0	0	0	0	1000
FERT.		0	0	3000	0	0	0	0	0	0	0	0	0	3000
CHEMICALS		0	0	0	0	1500	0	0	0	0	0	0	0	1500
CUSTOM HIRE		0	0	0	0	0	0	0	0	0	0	0	0	0
VET. EXP.		100	100	100	100	100	100	100	100	100	100	100	100	1200
FUEL		150	150	150	150	150	150	150	150	150	150	150	150	1800
TAXES		150	150	150	150	150	150	150	150	150	150	150	150	1800
INSURANCE		50	50	50	50	50	50	50	50	50	50	50	50	600
UTILITIES		200	200	200	200	200	200	200	200	200	200	200	200	2400
TRUCK 1		125	125	125	125	125	125	125	125	125	125	125	125	1500
TRUCK 2		75	75	75	75	75	75	75	75	75	75	75	75	900
OTHER FARM EXPENSE		0	0	0	0	0	0	0	0	0	0	0	0	0
TOT.CASH OPER. EXP		2650	2250	6150	2150	3650	2150	2150	2150	2150	2150	2150	2150	31900
CAPITAL EXPENSES														
BREEDING LIVESTOCK		0	0	0	0	1000	0	0	0	0	0	0	0	1000
MACHINERY		0	0	0	0	0	0	0	0	0	0	0	0	0
BLDGS, FENCES		0	0	0	0	0	0	0	0	0	0	0	0	0
TOT. CAP.EXPENSES		0	0	0	0	1000	0	0	0	0	0	0	0	1000
FAMILY LIVING		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	12000
INCOME TAX		0	0	0	2000	0	0	0	0	0	0	0	0	2000
NONFARM EXPENSES		150	150	150	150	150	150	150	150	150	150	150	150	1800
DEBT PAYMENT														
	PRINCIPAL	395	395	395	395	395	395	395	395	395	395	395	395	4740
	INTEREST	52	52	52	52	52	52	52	52	52	52	52	52	624
TOTAL CASH OUTFLOW		4247	3847	7747	5747	7247	3747	3747	3747	3747	3747	3747	3747	55064
BEGINIG CASH BAL.		2000	4753	7906	7159	8412	8165	11418	14671	17924	21177	24430	27683	30936
CASH DIFFERENCE		2753	3153	-747	1253	-247	3253	3253	3253	3253	3253	3253	3253	28936
CASH POSITION		4753	7906	7159	8412	8165	11418	14671	17924	21177	24430	27683	30936	59872
MONE- BORROWED		0	0	0	0	0	0	0	0	0	0	0	0	0
PRIN PAYMT OF LOAN		0	0	0	0	0	0	0	0	0	0	0	0	0
INT. PAYMT OF LOAN		0	0	0	0	0	0	0	0	0	0	0	0	0
ENDING CASH BAL.		4753	7906	7159	8412	8165	11418	14671	17924	21177	24430	27683	30936	59872
ACCLTD. BORROWING		0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 3:

Model	J.D.Trac.	Cost of last service	$250
ID Number	975321	Total repair cost/YTD	$725
Purchase Price	$25000	Date Purchased	1/10/80
Date/Last Serv.	MM/DD/YY	Mileage at purchase	10000
Type of Serv.	Clutch Rep.	Mileage last service	32000

Program Development, ***continued***

micro-computers. Quantity is not the problem, but proper selection can be. So let's look at "DBMS" and develop some purchasing criteria.

What Is It?

The classic analogy is a filing cabinet or box of 3 by 5 cards. The major difference is that a DBMS electronically files, stores, sorts, retrieves, performs math calculations, and prints reports. The program can keep track of everything from wheat fields, fertilizer, and seed usage to the number of apples sold and delivered per day. It can give you equipment repair reports, dairy herd management analysis, and cost of irrigation reports. If it is important enough that you count it, record it, add it, or subtract it and want to see it again, then DBMS is your best choice for software.

How Does It Work?

To illustrate how a sample program is designed, an equipment inventory was developed to keep track of machinery costs and repair records. The FILE set up in this electronic filing cabinet is called "Machinery, Inventory, and Repair Costs." A RECORD within the file might look like Figure 3.

Each item in a record has a specific name called a FIELD. In this example, the categories Model, Purchase Price, and Type of Service are fields.

Another critical setup function in most DBMS programs is deciding which specific fields you will need to locate. In this example, you might search by Model, ID number, Date of Purchase, or Type of Service.

After you have defined the file, the record format, and the fields, you design SCREENS to show someone entering the information where to put it. You also can create MENUS to provide instructions and a table of contents. (See Figure 4).

You will also design REPORT formats with dates, title, and the mathematical formulas for the calculations you need. Reports may be displayed on the screen or printed out.

A sample report for our machinery repair inventory might look like Figure 5.

Features to Watch For!

Each data base management program has special features that enhance or limit its application for your needs. Most are flexible enough to handle the usual farm applications.

Because the data base management system is complex, ease of use is the most important feature. You should be able to master it without having to learn programming language or large numbers of complex commands. The best test is to take a few of your simplest records to your computer dealer and have him "**Show You How**" to create a file and develop a screen. Then have him run a few sort routines with his demo data so you get a feel for the program's speed. Review the program documentation carefully to see if it explains the commands and options clearly. Teaching tapes are also extremely helpful, if available.

The more flexible and open the database system, the more you have to put into developing it. The more structured and limited the software, usually the easier it is to setup. You will be the best judge of the trade-offs in time and capacity.

Other Criteria

The number of records that the system can maintain is important.

The amount of information or characters you can store in each record is also important.

The mathematical capability and level of accuracy may be important factors for some applications.

The ability of the program to read and merge with other software program files can be a real asset if you want to create mailing lists and merge letters.

One problem that can be frustrating in the more structured systems is limited search capability. If you need to keep track of large numbers of records and to search by many fields, some programs just can't handle it. Carefully consider your requirements before you settle on a package.

Every farmer should have a good DBMS in his microcomputer arsenal. It is a challenge, but time and effort will produce many powerful management and record-keeping applications.

Figure 4:

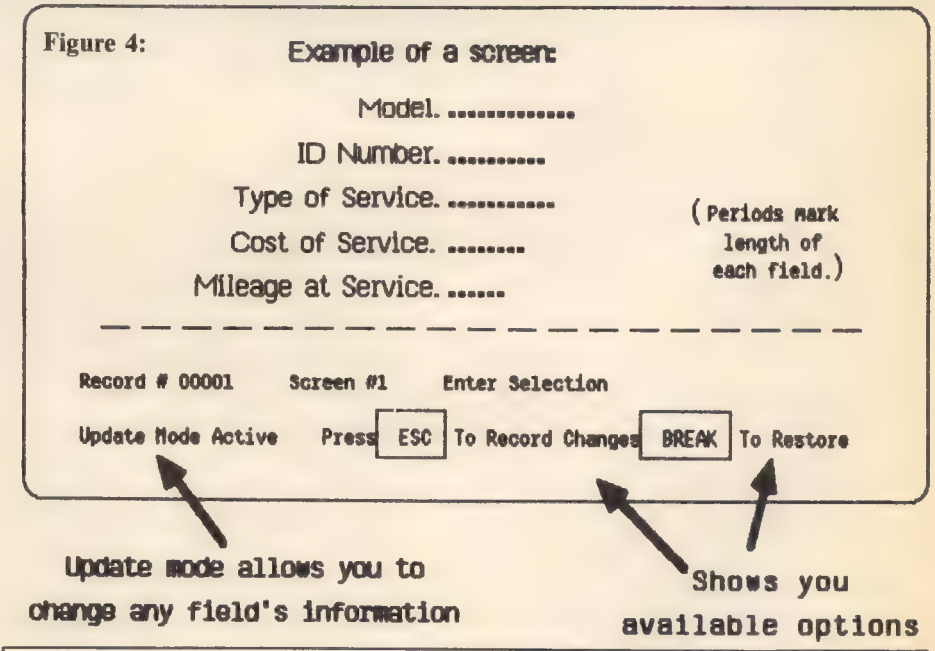


Figure 5:

WELL MANAGED FARM
Rt. 2, Box 34
Selah, Washington 98942
Wed. July 2, 1983

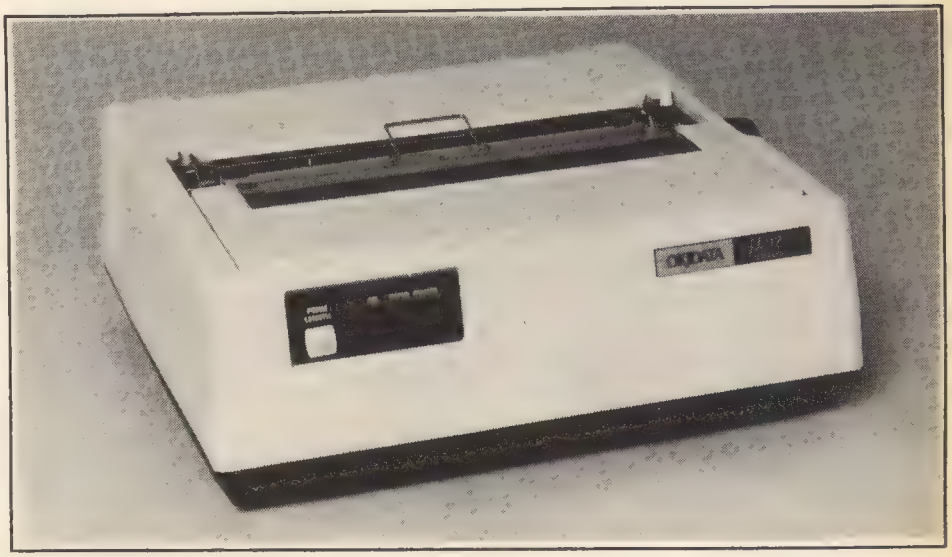
Machinery Inventory Repair Report #1

Model	Last Time Serviced Date	Miles	Repair Cost to Date	When Bought Date	Miles
79 J.D.Tractor	10/16/82	35000	$1100	10/25/80	10000
81 M.F.Tractor	01/20/83	15000	$500	01/26/81	0
80 Ford Pickup	01/21/83	40000	$750	06/20/80	0

Hard Facts on Hard Copy

OKIDATA

Microline 92



We've seen plenty of printers pass through our warehouse, but few of them are as deserving of praise as the **Microline 92** (80 columns) or the **Microline 93** (136 columns). This assesment comes in part from our own experience, but it's based largely on the experience of customers, who've used the **Microline 92** and **93** for word processing, business and scientific programs. They endorsed the printer the best way possible: by telling their friends and associates about it. This "word-of-mouth" advertising proved more powerful than any ad we've produced, and it made the **Microline 92** our Number One Best Seller in 1983.

Technically, the **Microline 92** and **93** are quite up-to-date. They print at 160 characters per second at 10 characters/inch (pica/draft mode), with bi-directional and short-line seeking head action to optimize mechanical motion. They also have 12 characters/inch (elite) and 17 characters/inch (condensed), and all fonts have a corresponding double width (for example, 10 characters/inch doubles down to 5 characters/inch, 12 cpi to 6 cpi, and 17 cpi to 8.5 cpi). You can double-strike all the fonts for extra dark copy, or boldface them (a double-strike shifted 1/120") through software.

There's also a correspondence-quality font that has earned great praise. This font is distinctly different from the others with the characters designed to resemble typewriter or daisy-wheel type characters (see the example below). The "near letter-quality" font can be used for all but the most demanding

DRAFT MODE

CORRESPONDENCE MODE

sort of correspondence: purchase orders, invoices, packing lists, bills, letters, reports and inter-office notes for example.

Dot-addressable graphics (also called bit-mapped graphics) are also standard on the **Microline 92** and **93**. The 60 horizontal by 72 vertical dots per inch (120 by 144 double-strike mode) produces sharp graphic output for logos, charts, graphs, drawings or your own personal doodles.

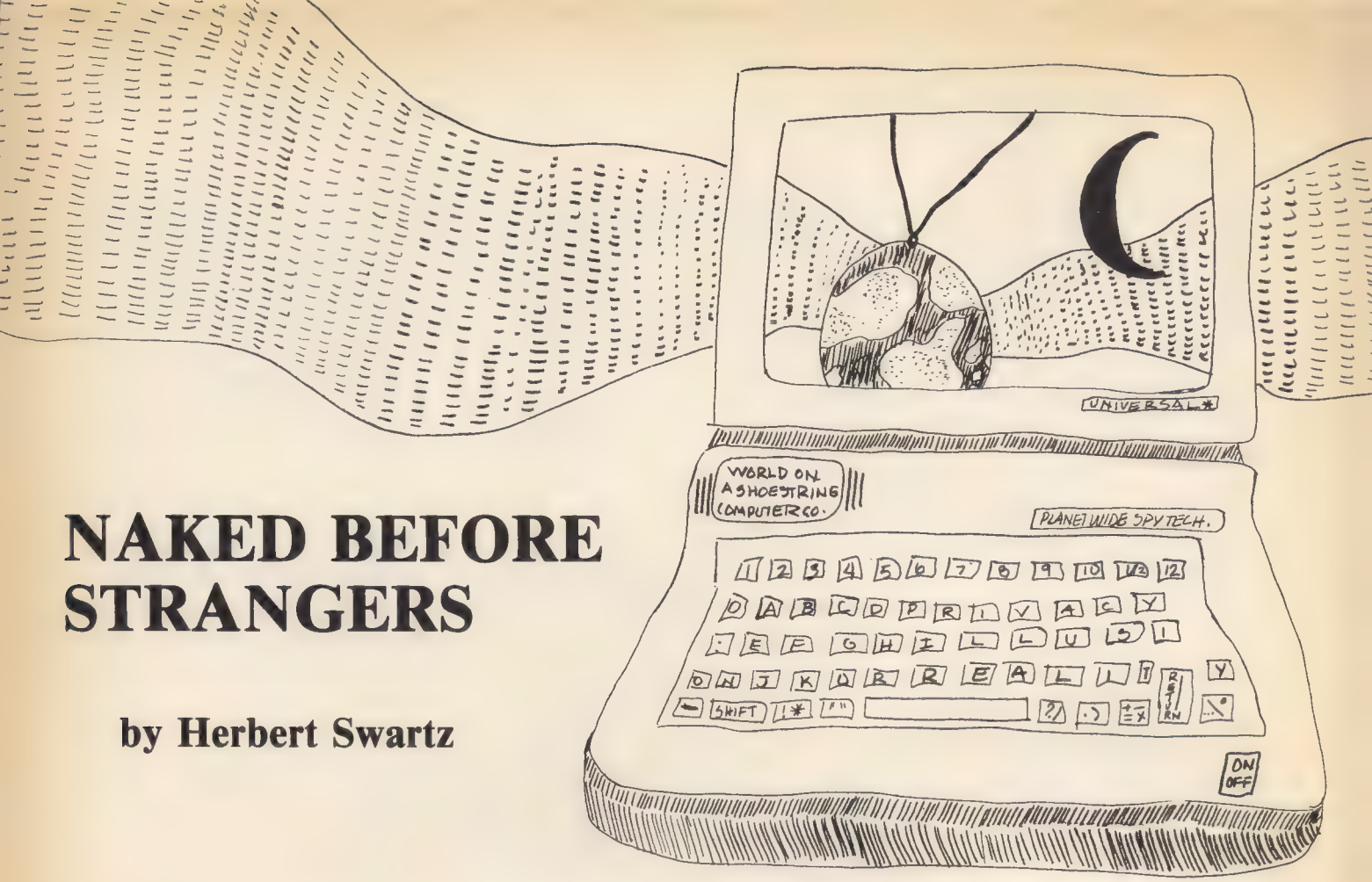
Paper handling is easy and convenient. Both printers have a bottom feed slot as well as a rear paper path. The **Microline 92** has both friction and pin feed. It can take single sheets or standard 9½" pin-fed paper. Optional paper handling accessories for the **Microline 92** include an adjustable tractor feed and a roll paper holder. The **Microline 93** comes standard with both friction feed and an adjustable tractor (sorry, no roll holder option is available) that accepts up to 14⅞" data processing paper. Both units accept up to 4-part forms (the original plus three copies).

The **Microline 92** or **93** comes standard with an 8-bit Centronics compatible parallel interface. A standard 2K printing buffer can also be used for downloading special or customized character sets. An optional RS-232C interface (serial) with 2K is also available. It accepts 7 or 8 bit data from 110 to 9600 baud, with odd, even or no parity. Protocols include Okidata SIMPLE BUSY and SIMPLE ACKNOWLEDGE, Centronics RS-232, Centronics UNBLOCKED, DEC Duplex and Local TES

On top of all this, there is yet another option: **PC Plug-n-Play ROMs**. These ROMs will turn your **Microline 92** or **93** into an IBM-PC printer with graphics. You can install the **92** or **93** on ***any*** program that has an IBM-PC printer with dot and block graphics...meaning every PC program made. This option expands the compatability of the **Microline 92** and **93**, yet it's simple to switch back to Okidata dot graphics by replacing the original ROMs. Easy.

Warranty repairs are even easier. Now you don't have to worry about "who fixes it." Okidata has contracted with Xerox to provide national warranty service on all Okidata printers. You can find a Xerox Service Center in nearly every major U.S. city (as well as some minor U.S. cities). Call **(603) 881-9855** for the name and number of the Xerox Service Center nearest you. All warranty work can be handled by your Xerox Service Representative, and you can also arrange service contracts for after-warranty work. Or, if you like, take advantage of our own ***Extended Warranty Plan***: we cover all parts and labor after the manufacturer's standard 90 day warranty for an additional 275 days, giving you a full year of coverage. It costs only $39.88 extra for the **Microline 92** and $49.88 for **Microline 93**.

Call **800-343-0726** for prices on all items mentioned in this ad. If you need more technical details, call **(603) 881-9855** and ask for Technical Sales.



NAKED BEFORE STRANGERS

by Herbert Swartz

Must the age of the computer mean the end of our privacy?

The proposition is inherent in the very title of David Burnham's book, *The Rise Of The Computer State* (reviewed beginning on page 14.) The words "The Computer State" subsume the existence of privacy. As Walter Cronkite comments in the forward: "The alarm is raised here (in the book) that, while we are only too aware now of the danger of losing everything in a nuclear holocaust, there is also a danger of losing it all in the green glow from a little phospor screen." Indeed, the word "alarm" is euphemistic, for Burnham's book speaks with the resonance of inevitability.

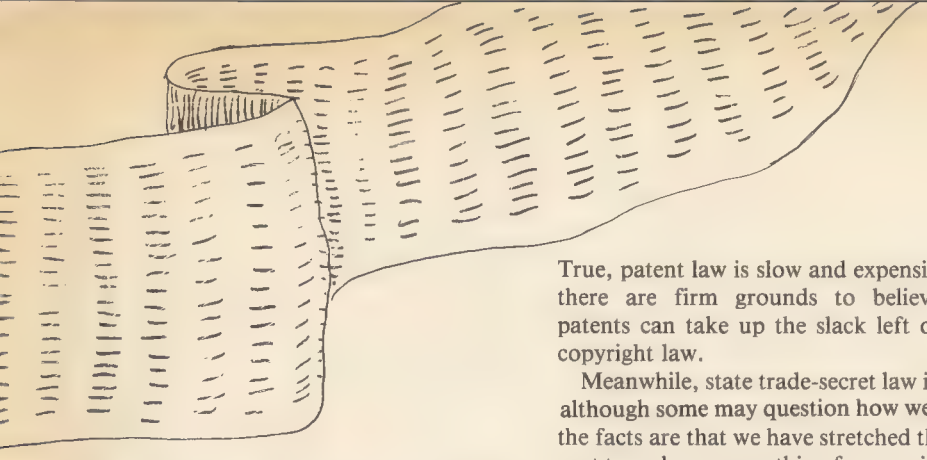
Only a legal system of privacy able to meet the computer age head-on offers any chance for our salvation, according to Burnham. "Government agencies . . . must write new regulations," he says. "City councils, state legislatures, and Congress must pass new laws. The courts must reconsider their thinking about many issues."

Yet Burnham quickly extinguishes even that glimmer of hope: "Such a broad range of changes in a legal structure as large and complex as ours is a never-ending and extraordinarily challenging endeavor." And even if a new construct were created, he reminds us, it would not be self-executing and could be circumvented easily: "The United States prides itself on being a nation of laws and not men...But public policy is much more than the sum of the laws . . . and the regulations . . . Because every agency enjoys wide discretion in how they (sic) choose to apply the law, individual men and women . . . are able to influence the process of government much more than usually is imagined."

Burnham's book is a resounding condemnation of those who evade the law in their misguided zeal to attain some higher good. We are enraged, even startled, as Burnham adjures us: "The history of how the Carter and Reagan administrations have encouraged the growing use of computer matching, despite provisions of law that would seem to prohibit it, is highly instructive . . . The history tells us first how hard it is to deny technology. Once an individual or company or government has the technical ability to travel down a specific path, there frequently is an overwhelming compulsion to make that journey. The history further tells us that a simple legal prohibition is often an insufficient brake. Many laws cannot stand alone."

Alas, then, according to Burnham, the wonders of computer technology, have cost us our privacy. And what a loss! Witness the words of Supreme Court Justice Louis Brandeis: "The makers of our Constitution recognized the significance of man's spiritual nature, of his feelings and intellect . . . they sought to protect Americans in their beliefs, their thoughts, their emotions and their sensations. They conferred . . . the right to be left alone — the most comprehensive of rights and the right most valued by civilized men." Likewise, the words of French historian Alexis de Tocqueville: "If the private rights of an individual are violated . . . the manners of a nation are corrupted, jeopardizing the entire society."

But when one turns to history, as Burnham does, there is, thankfully, more to consider than the transgressions of the last two presidential administrations. For "History," as Harvard Law scholar Paul Freund has observed, 'is looking over the field and picking out your friends." And when looking at the question of privacy, we find "friends" in the history of proprietary laws. This history offers hope that the law of privacy will prevail, that the computer can be controlled within a duly fashioned



legal system, and that as law has responded in the past to evolving technology in general, and to computer technology in particular, it can do so again.

The Law

The history of proprietary laws begins with Johannes Gutenberg and the invention of the printing press in 1439, followed nearly three centuries later by the world's first copyright statute, enacted in England in 1704. All of the early colonies passed similar laws and when the Constitution was written, Congress was mandated "to promote the progress of science and the useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writing and discoveries . . ." Other states that later joined the Union joined as well in the copyright march.

So, until the 1970's, we had a dual (federal and state) copyright system. A new Copyright Act in 1976 changed it to a unitary (federal) system, preempting existing state copyright acts. The Copyright Act of 1976 provided a uniform national policy and a means to join international copyright pacts. But it also acknowledged the way technology had expanded the definition of "writings" to include everything from audio-visual works to piano rolls.

Then, in December 1980, came the Software Amendments, explicitly placing computer programs among the "writings" protected by our unitary copyright system. And in August 1983, the U.S. Court of Appeals for the Third Circuit in *Apple* vs. *Franklin* extended this protection to include object code, object code embedded in ROM (read-only memories) and operational-system programs. Source code and application-system programs were already within the ambit of copyrightable computer programs.

Along with copyright law, two other legal avenues serve to protect the intellectual or proprietary rights in software — patent law and trade-secret law. We are nearly able to patent our software, indeed, we may already have this right: When the Supreme Court changed its view on the patentability of algorithms, it became possible to patent software embedded in hardware as well. True, patent law is slow and expensive, but there are firm grounds to believe that patents can take up the slack left over by copyright law.

Meanwhile, state trade-secret law is alive, although some may question how well. Yet, the facts are that we have stretched the concept to embrace everything from mainframe licenses to the shrinkwrap licenses included in software packages for microcomputers. Trade-secret law upholds two concepts excluded from the 1976 copyright act: the sanctity of an agreement between two parties in a copyrightable work, and protection in that agreement for the "idea" of such work and its "use."

In striking a viable balance between rights of the creator and the public's right to know, our copyright system focuses on the creator's exclusive right to control reproductions, distributions, display and the like. "Idea" and "use" are left free for society's employment. So, we have in theory, and little less in practice, a legal system fashioned to meet the development of the computer and its software, to defuse the threat of piracy, foster research and development, protect creators and allow the spread of information — this last so-called key to our information-based economy.

Granted, there are still illogical matters to rectify. For example, statute allows a 75-year copyright monopoly in a computer program — far too long to satisfy the public's right to information. Yet the Semiconductor Chip Protection Act of 1983 (the "Chip Bill"), granting only a ten-year monopoly and allowing for compulsory licensing of chips by innocent copyright infringers, illustrates our capacity to fractionalize copyright law to the demands of high-tech's evolution.

In short, our legal system has responded to the need for protection of proprietary rights in the computer universe. Indeed, it can well be argued that, without such a salutary response, we might never have seen the rise of "The Computer State" that Burnham describes and deprecates.

From Copyright to Privacy

Unfortunately, Burnham does not deal with proprietary history regarding computers, as we have. For us, the question follows naturally: Why not, too, for the law of privacy?

The simple answer is that at this point we still do not know. The jury of history is still out; more precisely, it has only just left the courtroom to deliberate. Privacy concerns in re the computer are historically and legally still in their infancy. Further, fashioning a workable law of privacy for the computer is infinitely more complex than designing a system of proprietary rights.

We start with disagreement over the particularities of the generic term "privacy." Consider, for example, the emotions raised by abortion as a privacy issue. Though privacy certainly encompasses personhood, to what extent does it include property rights as well? What are a name, a reputation and a likeness, if not matters of value as well as of spirit?

Privacy also implies disorder. Matters cannot be accomplished solely out of expedition, but with sensitivity to the rights of individuals.

Nor is the law of privacy without opponents — not pirates or some other genre of "black hats," as is the case with proprietary rights, but upstanding opponents who want more information and more access to it. These are understandable, even exemplary sentiments, for information equates to money and power. But privacy laws would curtail the production and spread of information. In this sense, they appear inimical to the historical mission of the computer: to gather and manage information.

Privacy also implies disorder. Matters cannot be accomplished solely out of expedition, but with sensitivity to the rights of individuals. Yet, otherwise ingenuous government officials are hellbent for "order," and privacy stands as a road block. It mandates restraint. Few officials speak out for freedom and liberty (i.e., privacy) when they have work to do. The organization and its goals become sanctified.

As Burnham explains: "Mr. Reagan and his advisers appear to live in a world where the desire for orderliness dominates other considerations. Perhaps because most of the members of the Reagan Administration have so long held positions of corporate or

↪

political power, they find it hard to conjure up situations where the institutions they are associated with might some day turn on them. The . . . sure knowledge of the value of individual freedom, and a firm conviction that any bureaucracy can become abusive, have not been the hallmark of the Reagan team or the permanent cadre of the federal government.

"The more conservative elements of American life, however, cannot claim exclusive rights to the occasionally dangerous pursuit of order. The widespread abuses of government databases, computerized telecommunications systems and federal investigations uncovered during the 1970's left tar on the administrations of every political coloration."

A Place For Privacy

Thus, even finding a place for the law of privacy in "The Computer State" is a huge order. The ambiguity extends to its very roots. "Privacy was not a part of English common law nor early American law," writes Professor George Trubow of John Marshall Law School. Rather, he continues, the concept dates from a seminal article written in 1890 in the Harvard Law Review by Samuel Warren and Louis Brandeis. They wrote that privacy is ". . . a part of the more general right to the immunity of the person, the right to one's personality." They adopted as well "the right to be let alone," and placed it at the very heart of the privacy doctrine.

While agreeing on the substance of the 1890 article, Michael Scott, editor of *Software Protection*, takes issue with our common-law experience with privacy. Warren and Brandeis did not "create a new legal right," he says. "Their article merely reiterated existing legal doctrines in a more coherent form." There is still "the so-called 'common law' right of privacy, which is . . . important in situations that do not fall within the scope of recent privacy legislation."

Professor William Prosser (the dean of American tort law) later defined four kinds of privacy torts. (A tort is a civil wrong against a person or his property, e.g., a *negligently* caused automobile accident, as distinguished from a crime, which is a wrong against the state and may also be a wrong against a person or property, e.g., a *recklessly* caused automobile accident):

- Intrusion of the plaintiff's physical solitude;
- Publishing *of private matters* violating the ordinary decencies;
- Putting the plaintiff in a *false light* in the public's eye; and
- Appropriation of some element of the plaintiff's personality (name or likeness) for commercial use.

Today, these are the categories used by all courts.

Each of the four has relevance in "The Computer State," primarily, in regard to the doctrine of "informational privacy." The next step is to apply the four privacy torts to the specific circumstances of "The Computer State," and in the process to view the strengths and weaknesses these common law remedies provide.

Intrusion: The intrusion tort protects personal information about a subject. The information does not have to be published; indeed, its contents are irrelevant. Rather, intrusion speaks to the means by which personal information is obtained. Moreover, a federal court has noted that "the common law right (to solitude and seclusion) extends

beyond the . . . immediate physical environment (to) examinations of bank accounts or of personal records under false pretenses, or by opening of mail."

However, in the construct of a law of privacy for the threats of the computer, the tort of intrusion has problems, as Professor Arthur Miller of Harvard Law School points out in his book, *The Assault On Privacy*: "The intrusion category primarily deals with the nature of the conduct that constitutes the privacy violation rather than what is subsequently done with the fruits of the intrusion; yet in the context of computerized information it is the *use* of the data that presents the major threat to privacy."

Publication of private matters: Although this may become the most useful form of the privacy torts in computer cases, there are problems. First, it requires that the private facts be disclosed to the public at large. Courts have awarded damages in a few cases involving a small number of witnesses to the invasion of privacy; but in computer cases, a single witness may constitute the "public at large." Says Miller on this point: "The publicity requirement is particularly troublesome . . . since the critical dissemination may take place when one user of a time-share system permits another to have access to private files, or when the operators of two different systems agree to exchange tapes or interconnect systems."

The second problem with this tort is that the publicly-disclosed information must be facts normally considered to be private. As Miller observes, "Whether the court treats particular facts as private depends largely on the general community's attitude rather than a fixed norm . . . The danger is that widespread computerization of personal data, coupled with continuous demands for data by society's information managers, will slowly narrow the community's conception of what is private, which in turn will gradually reduce the effectiveness of the privacy action."

A third problem is the centralization of data in computer banks. Miller speculates that when highly confidential data are commingled in a computer with less sensitive material, the entire mass of data on an individual may "be treated as if it had a rather low level of sensitivity. Consequently, the over-all protection may be less than that which should be accorded the most personal information stored in the system."

Fourthly, the disclosure here must be offensive to a person with ordinary sensibilities. But, "By the time large quantities of computerized personal information are available and transfers of machine-readable data are commonplace occurrences," says Miller, "the public may have become anesthetized . . . Just as we may have become acclimated to the obnoxious and omnipresent quality of television commercials, the revelation of intimate details in a person's computer record may become so normal that it will not satisfy the requisite level of community offense."

False Light: How useful this tort will be in computer cases is not clear. Miller feels, though, it would be unfortunate to ignore it: "Indeed, it is the only one of Dean Prosser's categories that even remotely suggests the type of sensitive analysis that is necessary to come to grips with the range of subtle injuries that can be inflicted in an information-based society. Thus, it would be desirable to refine and expand the false-light doctrine to permit lawsuits by those who have been injured by the dissemination of information that is misleading, has been used out of context, or has become inaccurate because of age, improper supplementation, or failure to include important underlying data."

Appropriation: It could be argued that a full computer dossier is as much a picture of a person as a photograph. "Unfortunately," according to Miller, "this line of reasoning can be criticized as little more than a play on words . . . In addition to

their obvious physical difference, the analogy between a photograph and an alpha-numeric file is imperfect because there is no clear point at which factual information becomes sufficiently complete to constitute a 'picture.' Moreover, dissemination of individual items of data to different buyers technically would not be actionable under the logic of the analogy, since it is only the appropriation of the entire 'picture' that fits the category of the privacy action. Another difficulty is that there would be no protection against the transfer of inaccurate information since erroneous data, however detailed they might be, presumably would not be a 'likeness' of the person suing.

Consent

There is yet one other major difficulty that crosses the boundaries of the four tort categories: *consent.*

With the record-keeping ability of the computer, consent becomes increasingly complex. We begin with the fact of implicit consent. We provide information about ourselves in exchange for credit, medical care, education, employment — the myriad benefits of the affluent society. But when we consent for certain information to be used for medical purposes, can it be inferred that we also consent to its use for credit purposes?

"Legally, the information may be used only in the manner consented to and may not be passed on to someone else for the purpose of invading another's privacy," writes Pat Washburn in *Computer Law/ Journal.* "In practice, however, it is difficult to prevent this kind of traffic in personal information because of the difficulty in tracing it."

Columbia University privacy expert and professor, Alan Westin, has identified eight computer-based transactions in which we constantly provide information about ourselves:

- Home banking
- Shop-at-home services
- Information services
- Home and personal security services
- Instant opinion polling
- Home study
- Special entertainment options
- Organizational fund raising

The problem of inferred and implied consent is rampant throughout. If consent, implied or inferred, is deemed present by courts or legislators in any of these areas, the law of privacy will be all but null and void, because consent is a defense to all four categories of the tort.

Professor Miller sums up the entire area of inferred consent as "perhaps the most significant weakness in today's common law privacy action." He adds: "In too many instances, 'consent' is used as a convenient epithet that places responsibility for a loss of privacy on the victim and absolves the intruder." He concludes with a stinging appraisal: "In view of the growing threat to privacy from the new technologies, every assertion of consent and waiver by information system operators must be regarded with considerable skepticism. These defenses must always be carefully evaluated because their effect is to permit data handlers and users to shift the risks of their activities to individual file subjects. If we are to do more than pay lip service to the right of informational privacy, the law must impose a duty of care on the data gatherer that is commensurate with the degree of coercion or pressure under which an individual yields control over personal data."

So, alas, we have our common-law concept to protect our privacy from the ravages of 'The Computer State.' It is far from perfect, and it nowhere approaches the state of the law that protects proprietary rights. But it exists, although Burnham gives it short shrift, and it is a beginning.

Congress has responded to the call to save privacy with a number of bills (see sidebar). State legislatures also provide a variety of specific confidentiality guarantees. Commentators, judges and legislatures — and, we would hope, concerned officials in the computer industry

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Congress has passed at least nine major pieces of legislation in attempts to divert the potential collision course of privacy and the computer. These brief summaries are taken from the writings of John Marshall Law School Professor, George Trubow.

The Fair Credit Reporting Act of 1970 was the first federal legislation to regulate personal information maintained by the private sector. It requires credit investigation and reporting organizations to make their records available to the data subject, provide procedures for correcting information, and permit disclosure only to authorized customers.

The Crime Control Act of 1973 requires that state criminal justice information systems developed with federal funds be protected by measures to insure the "privacy and security" of information. The Law Enforcement Assistance Administration was authorized to promulgate implementing regulations, and did so in 1975.

The Privacy Act of 1974 was the first comprehensive legislation to protect the confidentiality of personal information stored by federal agencies. It provides access by data subjects, requires procedures for amending challenged information, and limits disclosure to third parties.

The Family Education Rights and Privacy Act of 1974, known as the Buckley Amendment, requires schools and colleges to grant students (or their parents) access to student records, provide challenge and correction procedures, and sharply limit disclosure to third parties.

The Tax Reform Act of 1976 protects the confidentiality of individual tax returns and limits third-party disclosure primarily to federal and state tax authorities.

The Right To Financial Privacy Act of 1978 provides bank customers with some privacy regarding their records held by banks and related institutions. Although the law does not cover state or private third-party inquiries to banks, the RFPA creates an expectation of privacy by providing procedures whereby federal agents can gain access.

The Privacy Protection Act of 1980 limits the procedures by which law enforcement authorities can see a newspaper's records or files.

The Electronic Funds Transfer Act of 1980 provides that any institution providing electronic fund transfers or other bank services must notify its customers about third-party access to customer accounts. It does not, however, provide specific privacy protections.

The Freedom of Information Act of 1966 makes federal records available for public inspection on the theory that the government's business is everyone's business. Among the specific exemptions from the law's disclosure requirements is one exempting disclosures that would be a clearly unwarranted invasion of privacy. This exemption is designed for cases in which a government record may pertain to an individual other than the one making the inquiry. The FOIA and privacy may be said to be in conflict. Thus, when there is a disagreement regarding the propriety of information disclosure, federal agencies and courts must balance the public's "right to know" against the individual's desire for privacy.

Future Problems?

Robert Smith, editor of *Privacy Journal*, believes that the new technologies, and most especially two-way television, have a significant potential for serious privacy problems in at least three areas:

- Manipulation of the public through targeted advertising, and the ability to discriminate between or against certain users based on income, neighborhoods where they live, and buying habits;
- Intrusion by the government using the system to affect public opinion; and
- Pacification of the public by merely offering the same sort of "pap" now offered by the commercial networks, but in a much more intrusive manner.

Mr Smith is also an exponent of those who do not believe the greatest threat to privacy today comes from government. In his words: "As opposed to seeing government as the greatest threat to privacy, I think that the threat will come from the commercial sector. The information available to them is too tempting to ignore."

The entire area of inferred consent is perhaps the most significant weakness in today's common law privacy action.

Naked Before Strangers, *continued*

itself — know the questions that have to be answered in formulating a sound informational policy that is sensitive to privacy concerns. These queries include:

- Can and should informational policy regulate the information practices of private individuals? Government, institutions and businesses are one thing; the individual at home with his micro is another. He, too, is entitled to privacy, but with the growing strength of the micro, he, too, can invade the privacy of another.

- What should be the criterion for triggering injury to the individual? Is it simply the outrage and emotional distress resulting from wrongful disclosure of private information? Should privacy be protected in the Warren/Brandeis notion of "inviolate personality," or only in the property context when there has been commercial or pecuniary harm?

- Is privacy an aspect only of individuals, or of corporations as well? Privacy in the personality sense is difficult to envision for corporations, but privacy as property is relevant to the protection of a business entity.

- If and when is federal/state/self-regulation desirable? The private sector provided virtually no informational privacy until the federal government threatened to intervene. Corporate self-regulation is still the exception and not the rule.

- What sort of regulatory agency, if any, should be established to monitor and protect the information interests of individuals and society? When the Privacy Act of 1974 was enacted (see sidebar), the White House discouraged the creation of a separate agency or bureaucracy to oversee its implementation. Is the time now ripe to create such an agency?

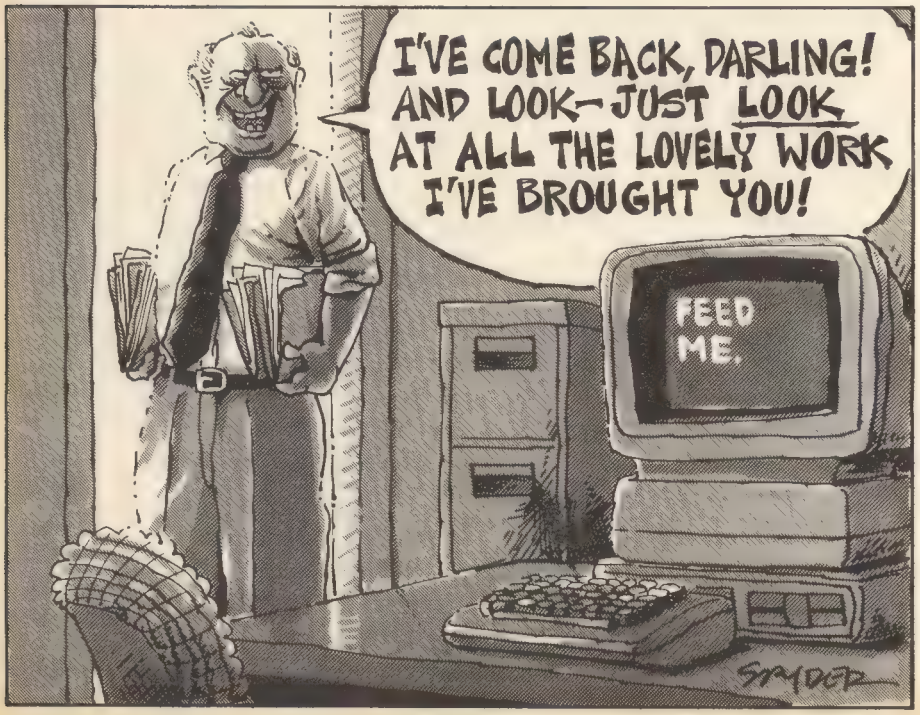
- How can press responsibility be assured when the day of electronic journalism arrives? The players will be far beyond the "respectable press," but the hurt to one's privacy no less.

- Do we want a system of single identification numbers? It cuts down inaccuracies, but the opportunities for cross-referencing are manifold.

- What of the needs of our criminal justice system? Should it be excluded from the confidentiality of privacy constraints? If so, we pay a great price for law and order.

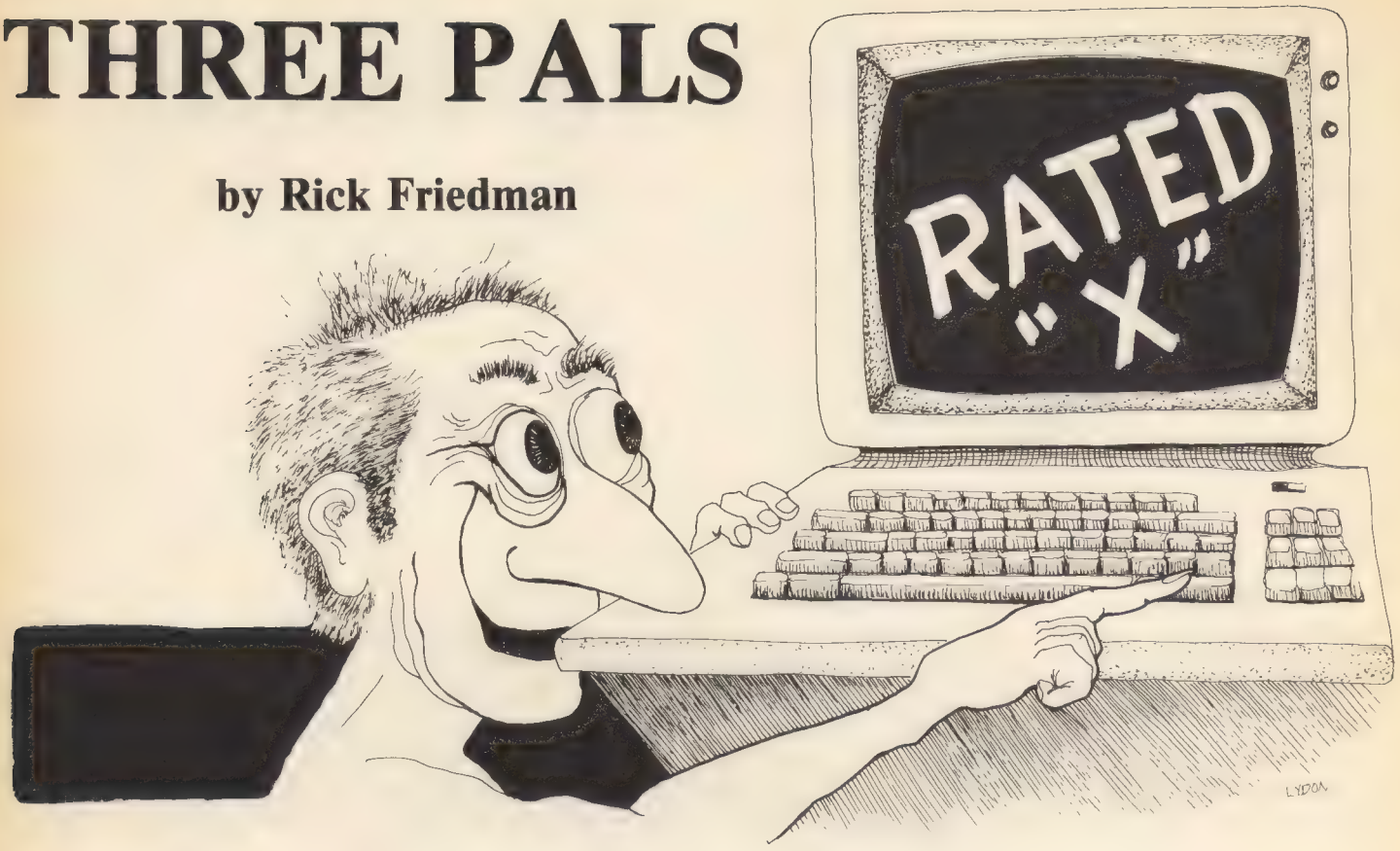
The tools of awareness and a common-law system of privacy are available to us now as we begin the task of preserving privacy within "The Computer State." Burnham's outrage is justified, lord knows. But with these tools in hand, what we face is a crisis of will. If Burnham's book can spur the indignation to mount that will, *The Rise Of The Computer State* will amount to far more than the excellent journalism it is.

SoftTakes



THREE PALS

by Rick Friedman



Things are almost back to normal in our little town of Bloomsbury. The Bijou is open again as a movie house, the pickets that were in front of my computer store are almost all gone, the members of the Thursday Night Hackers Club are again welcome to the basement meeting room of the Bloomsbury State Bank. We Hackers are even talking to each other again — sort of.

The one Hacker missing, of course, if you have been reading the *Bloomsbury Defender*, is Alvie McIntosh. Me? I was with Alvie all the way, even after Ed Baggs, our town's only full-time mailman, and his friends started picketing my computer store. Alvie wasn't *just* my friend since we were kids in Bloomsbury. He also was my tenant up in the furnished one-room apartment over my garage — since he came back from the Korean War limping on a bad left leg.

Some Bloomsburians tend to forget that, for most of the years Alvie lived up there, he was one of the most respected citizens in our little Southern California town of 3193 souls — until he came up with *The Game.*

Alvie McIntosh was Bloomsbury's official Crack Inspector. He spent five days a week, eight hours a day, searching the paved streets of Bloomsbury for cracks. He didn't make much money as our official town Crack Inspector, but he took the work seriously, and his eagle eye won the admiration of the entire town. We were real proud that we had the best-looking streets in all of Southern California, as *Bloomsbury Defender* Editor Jack Hooey pointed out at least twice a month in his "Bouquets and Brickbats" editorial page column.

Of course, at the time, nobody knew that Alvie was up over my garage tinkering away on his microcomputer — that is, until he and Dr. Lempeesis, our town's dentist, got all that publicity in the *Bloomsbury Defender*. They came up with a way people could get their lost teeth returned real quick. As near as I can remember it was a couple or more years ago; you can look it up in the *Bloomsbury Defender* if you want. It went something like this:

When you had your false teeth made, the dentist engraved two sets of numbers on them. One was an 800 number that hooked into a computer at the headquarters of the American Dental Association. The second was an identification number that you could voice read over the phone into the computer.

The computer at the American Dental Association had all the identification numbers of every set of false teeth made in the United States. When a lost set identification number got called into the computer, the originating dentist would be notified by computer or by telegram.

Jack Hooey ran a big front-page feature story about the false teeth computer program and a picture of Alvie and Dr. Lempeesis. They were posing in front of the computer in Dr. Lempeesis' office, arms around each other's shoulders; each had a hand on a full set of uppers and lowers held out in front of them.

The upshot was that Dr. Lempeesis took the false teeth computer idea to the American Dental Association convention in Las Vegas that year. Dr. Lempeesis was the only dentist ever booed off the podium in the entire history of the ADA.

Jack Hooey wrote an editorial suggesting that the ADA had a vested interest in people never finding their lost false teeth. He called the ADA a good example of American free enterprise gone astray. For a staunch Republican like Jack Hooey, that was strong stuff.

It was the false teeth story that alerted all of us Bloomsburians that Alvie McIntosh was hacking away on a computer. At the time, few people in town realized that a bunch of us, within earshot, were hacking away at computer keyboards in attics, basements and garages all over Bloomsbury.

Out of the Attic

Then Alvie bought himself a portable computer and started hauling it around town in a briefcase as he looked for cracks in the Bloomsbury streets to pop out under the sizzling, California-summer sun. Alvie was getting along into middleage, a frail little guy with a limp, but the computer and briefcase, which must have weighed fifteen pounds, seemed like a toy in Alvie's hand.

Now and then, he would stop at a Bloomsbury Bus Company bench, open his briefcase, set up his battery-operated portable, and start punching away on the tiny keyboard. People figured Alvie McIntosh was devising a way to compute just where and when a crack would pop up in a Bloomsbury street — by hour, day, month and year. Alvie never did explain to anybody, even me, what he was doing on that Bloomsbury Bus Company bench; the most he would ever reply was, "You'll see." It was many months later, when *The Game* controversy broke out, that we realized Alvie McIntosh wasn't working on a program to locate cracks in the Bloomsbury streets.

About the same time Alvie showed up on the street with his portable computer, Maude Crusty, our town barber, put a personal computer on the counter in her barber shop. On slow summer weekday afternoons, she stood over it and worked on a program that she hoped could tell her, by the head, how much hair she had to cut, how much time on her feet it would take, and how much she had to make to take a two-week vacation and cover her losses at the dog track in Tijuana. Maude Crusty loved the dogs in Tijuana, but they seldom returned her affection.

Then Bo Beeker, our police chief, turned up with a computer in his cruiser; he plugged it into his cigarette lighter. Even though there hadn't been a major crime in Bloomsbury for 32 years, Bo Beeker had his computer tied into a data base that flashed Interpol's most wanted bad guys on the screen. Ever since Bo saw the movie, "The French Connection," he dreamed of catching an international crook who got lost on the LA Freeway and was cruising through Bloomsbury looking for Mexico. Chief Beeker would park by the "Welcome to Rotary, Elks, Kiwanis, Lions, Bloomsbury Chamber of Commerce" sign, scan his screen, and examine the swarthy face passing by in a car. Bo Beeker had a chronic stiff neck.

It was Ed Baggs who got us into the basement meeting room of the Bloomsbury State Bank. We quickly became known around town as The Thursday Night Hackers. Eight of us were sort of regulars. Police Chief Beeker never did join; he was too busy watching passing cars and rubbing his neck.

Ed Baggs always showed up in his neatly pressed, gray postal uniform with its blue stripes down the pant legs. Maude Crusty was usually there, bits of other people's hair falling from her clothes. And I was there, of course, the long-time owner of The Bloomsbury One-Stop Super Shopping Plaza and, since Silicon Valley had replaced the Jolly Green giant in the hearts of our townsfolk, also the owner of the Bloomsbury Friendly Computer Store.

ther members of our little group were Will Grimsley, Bloomsbury's only full-time fireman; Fitzhugh Morgan, who owned the Bijou, Bloomsbury's one movie house; "High Speed Willie" Lehman, who worked as a commodities broker somewhere in downtown LA; and Dr. Jacques D. Mott, who taught computer science at Bloomsbury Junior College. We tried to get Dr. Lempeesis to join; that's when we learned he had sold his computer.

Fitzhugh Morgan had been hacking away on a micro-computer in his Bijou projection room while the rest of Bloomsbury watched movies in the hard seats below. The movies he showed bored the Hell out of him, particularly "The Last Picture Show," which his patrons insisted on seeing over and over. Bloomsburians identified with "The Last Picture Show."

Fire Chief Will Grimsley had a personal computer on the second floor of the firehouse, where he was forced to sleep most of the time (being the only paid fireman in town), unless he could get one of the volunteer firemen to take a turn up there, which was almost never.

"High Speed Willie" Lehman first earned his nickname as Bloomsbury High School's greatest athlete in the 1960's. When "High Speed Willie" started selling commodities he was wired for sound — car radio phone, beeper, tape recorder. "High Speed Willie" could sell a commodity for you while he was tooling 80 along the LA Freeway. Then he put a computer in his MG. People who rode with him claimed that "High Speed Willie" could sell a commodity even faster, driving one-handed while he punched up numbers on his screen. "High Speed Willie" never lost the great peripheral vision and agility that once earned him seven letters at Bloomsbury High School. And he had a perfect driving record.

The Wizard

Dr. Jacques D. Mott, a jolly, round little man with a great white beard and twinkly, clear blue eyes, was unofficial adviser to our hacker's club. We had all taken his non-credit computer course. He encouraged us that anything was possible when we sat down in front of computers, particularly portable ones. Dr. Jacques D. Mott loved portable computers, maybe because they were small like him. We hackers knew that we were onto something whenever Dr. Jacques D. Mott began to chuckle and his round little body shook.

Dr. Jacques D. Mott was chuckling and shaking more than usual that fateful night, when he walked into the Bloomsbury State Bank basement with Alvie McIntosh limping in behind him. The two of them had been working for months on something secretive up over my garage. Whenever someone asked about it, Dr. Jacques D. Mott would just chuckle and shake and Alvie would shrug and mumble, "You'll see."

That night the two of them hooked a computer with three joysticks to a television set in front of the meeting room. Maude Crusty, who had been in on the secret from the start, took her place on a chair with Dr. Jacques D. Mott on her left and Alvie McIntosh on her right. All three held joysticks.

The rest of us assumed rightly that we were to see some new video game. Inventing video games was not unusual to members of The Thursday Night Hackers.

Will Grimsley, for instance, had come up with a doozy he called, "Lunar Lepers." It involved a fireman who tried to save a colony of lepers caught in a galactic firestorm on the Moon. The trick was to save the lepers and still not catch leprosy.

Fitzhugh Morgan, the town intellectual and one of its only two Democrats, came up with games only he could figure out, games such as "Hemlock in Hell" and "Beowulfman." His instructions were always written in ancient Greek or Olde English.

Dr. Jacques D. Mott, Maude Crusty, and Alvie McIntosh popped floppies into the drives, the television screen lit up, and they began to operate their joysticks. Dr. Jacques D. Mott was chuckling and shaking so hard that tears rolled down his face into his white whiskers. Maude Crusty played the game with the same intensity in her wide, square shoulders that she summoned when she was cutting an overly thick head of hair or rooting for her favorite Mexican dog. Alvie played in his usual laconic style.

The rest of us in the basement room were transfixed by the three figures on the screen in the midst of *pings! light flashes! exploding starbursts!* and *lightening zaps!* for maybe two minutes. Then Ed Baggs jumped up and screamed, "Enough!" This is the same Ed Baggs who is president of

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Bloomsbury School Board, past commander (twice) of The Brady Bloomsbury American Legion Post 444, staunch defender of the United States Postal Service and winnable nuclear war. "Enough!" he shouted three, maybe four times. Then he marched out of the Bloomsbury State Bank basement meeting room, his gray mailman's uniform with the blue stripes down the pant legs giving him the look of a Confederate soldier off to route the Army of the Potomac.

Will Grimsley got up next, and as he followed Ed Baggs out of the room, he turned and said to us, "Look, guys, I may not get to see them much, but I *do* have a wife and seven kids at home."

"High Speed Willie" Lehman then jumped toward the ceiling with one of his large, hairy clenched fists raised high, whooping in his three-piece suit like he did in short pants, when he singlehandedly won the 1966 state basketball championship for Bloomsbury High with a last second, sixty-foot rainbow shot into the hoop.

With help from Maude Crusty and Dr. Jacques D. Mott, Alvie McIntosh, Bloomsbury official Crack Inspector, had invented "Three Pals," the world's first X-rated adult video game!

Ed Baggs took the news right to Jack Hooey, of course; and the next day the *Bloomsbury Defender* ran the story with a front page editorial demanding that The Thursday Night Hackers Club disband. The same day, the Bloomsbury State Bank informed me we were no longer welcome in its basement meeting room. Even worse, two different groups in town paraded to my computer store. One assumed I was selling "Three Pals" diskettes (which I wasn't), and wanted to buy them. The second group picketed my computer store because they assumed I was selling "Three Pals" diskettes to the first group (which I wasn't). The next day the defender ran a three-column picture of Dr. Lempeeses in front of my store; he was holding up a large handmade sign that read: Down With Pornographics!

The whole mess might have died a quick death if it weren't for Fitzhugh Morgan. For twenty three years, Fitzhugh Morgan had been Bloomsbury's entire chapter of The American Civil Liberties Union. For most of his adult life he travelled up and down the state of California lending his support to such ACLU causes as Angela Davis and Huey Newton. Now he saw his *own* civil liberties cause dancing out there in front of him.

Fitzhugh Morgan showed up at the every-other-Monday night public meeting of the Bloomsbury Town Board, raised his hand at the right moment during *new business* and requested a permit to open an X-rated adult video game arcade where his Bijou theatre now stood. "High Speed Willie" Lehman, large and handsome in his $600 three-piece silk suit, was on one side of Fitzugh; he had commitments of venture capital needed to open the arcade. In fact he had venture capitalists in LA *begging* him to use their money.

Alvie sat on the other side of Fitzhugh Morgan; he had promised to raise more X-rated adult video games. With Jacques D. Mott's help, Alvie was already programming some dubious activities behind "The Green Door."

Jack Hooey, who reminded some of us of a pinched nerve, was hunched over at the press table, furiously taking notes. He was the only reporter present.

The Pedigree

Mrs. Bridey Bloomsbury (her husband had taken *her* maiden name) was, still is in fact, president of the Bloomsbury Town Board. Mrs. Bridey Bloomsbury was a big woman in town clout. Her paternal granddaddy founded Bloomsbury some seventy years before, when he opened the town's first gas station. Bridey Bloomsbury was founder and president of the Daughters of the Spanish-American War, Bloomsbury chapter; driving force behind the Bloomsbury Downtown Development Corporation; and chief mover of the "Bring a WFL Team To Bloomsbury Committee."

The Bloomsburys owned the Bloomsbury State Bank and the land under the Bloomsbury Semi-International Airport, not to mention everything under Main Street. Bridey herself owned fifty-one percent of the *Bloomsbury Defender.* Just about everybody in Bloomsbury paid either rent or mortgage money to the town's founding family.

Bridey Bloomsbury said not a word to Fitzhugh Morgan, whom she had long ago classified as an agent of the Kremlin. She just gave him the same long hard *stare* she used when turning down loans to the Bloomsbury State Bank or evicting recent widows and orphans from her numerous properties. The stare didn't deter Fitzhugh Morgan; adrenaline was pumping furiously through his tall, skinny left-leaning body, turning his bald, egg-shaped head pink. Fitzhugh told me later he hadn't felt that way since he tried to get Bloomsbury High School to invite Yasser Arafat as its commencement speaker.

Fitzhugh Morgan knew how to *play* the civil liberties game. "Supreme Court!" he yelled. Just that, nothing more. "Supreme Court!" three, maybe four times. Bridey Bloomsbury's two fellow board members turned a chalky color. They wanted neither the expense nor the notoriety of a Supreme Court case. The one on Bridey's left, John Lemon, our local Ford dealer, called for an adjournment to executive session in the back room where Bridey's daddy, Brody, used to pick the entire town Republican slate.

The three board members were gone maybe fifteen minutes, then came back in. Ritchie Kishabori, the third board member, spoke for all three; he owned the Bloomsbury Camera Store, and, with his wife and three children, represented our town's minority population. "The Bloomsbury Town Board," Ritchie Kishabori said with precision, "will screen Mr. McIntosh's

X-rated video game at the next meeting."

Before the seven or so people in the audience had a chance to react, John Lemon quickly moved to adjourn, Ritchie Kishabori seconded it, and the motion passed 3-0. Bridey Bloomsbury gavelled the meeting closed and strode like a colossus out of the building, with Jack Hooey, pad in hand, chasing after her.

We read the next day in the *Bloomsbury Defender* that the three town board members had decided, in executive session, that the best way to silence Fitzhugh Morgan, Alvie McIntosh and "High Speed Willie" Lehman and avoid an expensive court fight was to let them show their damn awful X-rated video trash. When the rest of Bloomsbury saw it at a public meeting, no Supreme Court — state *or* federal — would rule in favor of Fitzhugh Morgan and his perverted cohorts. Jack Hooey had assured them of it.

The Charges

Jack Hooey's front page editorial, set in large type in the same issue, claimed that an X-Rated Adult Video Game Arcade would bring prostitutes, organized crime, Commies and rampant herpes to our quiet little American town of Bloomsbury, turning it into the *Porno* capital of the world. Jack Hooey then dropped the *Bomb*: For years, going back to Ike, Bloomsburians had never guessed the identity of the town's second Democrat: It was Alvie McIntosh! I asked Alvie why he had never admitted to being a Democrat. "Nobody ever asked me," he said, shrugging.

But Fitzhugh Morgan wasn't about to let the press coverage end with the *Bloomsbury Defender*. Fitzhugh knew a third-string movie critic on the *LA Times*. By the end of the week, Bloomsbury was international news.

On its cover, *Time* magazine reprinted an editorial cartoon from the *Boston Globe*; it showed Bridey Bloomsbury, balancing two computers in muscular arms. Cords dangled to the floor from each computer, and, in front of Bridey, a female plug and a male plug wiggled their way toward each other.

ABC-TV flew Alvie to an LA television station where Barbara Walters interviewed him from New York, via satellite. Barbara asked Alvie what his favorite fruit was and when he replied, "Apple," she was still with him, sort of. Then she asked him what he most wanted to be remembered for and when Alvie replied, "My eight-inch floppy," Barbara and the network didn't know whether to bleep or go blank.

The *National Enquirer* Hollywood reporter showed up in Bloomsbury and offered a fortune for a copy of Alvie's "Three Pals." Fitzhugh, taking the advice of his third-string *L.A. Times* movie critic friend, made sure nobody would see "Three Pals" until the next Town Board meeting.

The *Enquirer* reporter refused to leave town empty-handed, and the *National Enquirer* ran a story on Page One that was headlined: Mania Grips Pornographic Town, USA! There was the old *Bloomsbury Defender* photo of Alvie and Dr. Lempeesis, arms around each other, holding up the set of false teeth. Dr. Lempeesis immediately sued the *National Enquirer* for 100 million dollars.

Norman Mailer wandered into my computer store. He said he was in town to write a quick book on "Three Pals." His working title, he said, was "The Naked and The Disk." Norman Mailer had the idea that one got a floppy disk throwing out his or her back while playing "Three Pals."

he town itself was split right down the middle, so to speak. Some saw Alvie's "Three Pals" as a way to bring high tech to Bloomsbury; the rest saw it as some pro-abortion, atheistic, Commie-inspired, drug-crazed, disease-spreading plot to turn our little town into another San Francisco. They took their cue from Jack Hooey's front-page, large-type editorials.

The every-other-Monday night Bloomsbury Town Board Meeting overflowed with townspeople, reporters, television crews and Hollywood starlets anxious to meet "High Speed Willie" Lehman and break into X-rated adult video games. Bridey Bloomsbury gaveled the meeting open, disposed of *old* business by ignoring it completely, and nodded that *The Game* should commence!

Dr. Jacques D. Mott, Maude Crusty and Alvie McIntosh already had their floppy disks in their drives, booted, and *The Game* loaded. They held their joysticks in the air, ready to go at a signal from "High Speed Willie" Lehman. A giant television screen had been set up on the wall above and behind the Town Board; it stared blankly at the overflowing room. Maude Crusty, dusting bits of hair from her shoulder with her free hand, was her solid, square-jawed, determined self. Dr. Jacques D. Mott chuckled and shook so much that it was a wonder he could hold onto his joystick. Alvie looked bored. The crowd, which a brief moment before shouted encouragement and insults, had fallen totally silent. "High Speed Willie" Lehman leaped into the air, arm and clenched fist high above him, and gave his familiar 1966 state basketball championship yell! The screen lit up!

The Game Was On!

Dr. Jacques D. Mott and Alvie had added some things since they first demonstrated *The Game* in the Bloomsbury State Bank basement meeting room. Now there were *gasps! groans! moans! screams! pants! sighs!* and even a few *giggles!* added to the *pings! light flashes! exploding starbursts!* and *lightning zaps!* as the three figures went up, down, sideways, diagonally and end over end across the screen for maybe 90 seconds. Then, there was a loud crash!

Bridey Bloomsbury had fainted!

It took fifteen minutes to revive her, after which she refused to leave the meeting. The Town Board voted three to zip to deny Fitzhugh Morgan his X-rated adult video game arcade license and to abolish Alvie McIntosh's official Crack Inspector post. Alvie just shrugged, unplugged his microcomputer from the giant television screen, and, limping, carried it out of The Bloomsbury Town Hall.

Like most news stories, *The Game* controversy lasted another week or two. Then it faded from sight, replaced by the discovery of the original Fifteen Commandments on three tablets in a Watkins Glen, N.Y., cave. The California chapter of the ACLU decided that "Three Pals" had no socially redeeming value whatsoever, and informed Fitzhugh Morgan it was putting its money into keeping reporters out of jail. Fitzhugh, crushed, re-opened the Bijou Theatre and played "The Last Picture Show" for twenty-three straight weeks, which reunited the opposing town factions.

The pickets, with the exception of Dr. Lempeesis, disappeared from in front of my computer store. The Bloomsbury State Bank invited us hackers back into its basement meeting room. Ed Baggs and Will Grimsley returned to coding and fixing loops, glitches and bugs with the rest of us.

Norman Mailer published a book within three weeks after the second town board meeting, borrowing heavily from an Apple II instructional manual. He called it "Armies of the Byte."

The other person to profit from *The Game* controversy was our police chief, Bo Beeker. Sitting at the edge of town those couple of weeks, rubbing his neck and watching swarthy faces in cars pass by, he spotted Interpol's most wanted con man, a slippery customer who was posing as Frances Ford Coppola. Thanks to the portable computer in his cruiser, Chief Beeker was the only person in Bloomsbury who knew what Frances Ford Coppola really looked like.

Alvie, of course, had disappeared from sight. When I got home that night from the Town Board meeting, I found an envelope taped to my garage door. Inside the envelope were three months rent money and a one-line note. It read: "We'll see."

HOME ENTERTAINMENT

Bringing the Information Revolution Home

by Michael Tucker

Home Entertainment's Editor, Judith Morrison, describes her publication as 'The International Cosumer Electronics lifestyle magazine. It's dedicated to integrating consumer electronics — everything from computers to video to audio — within the interior design of the home.'

It's difficult, if not impossible, to go beyond that description. *Home Entertainment* represents the final domestication of the personal technology that has been before the reserve of an elite band of hackers and fanatics. It makes home computers, digital audio systems, home video, and so on not merely interesting in a technical sense, but glamorous, classy, "upscale," and yet homey. If *Micro Discovery* magazine (see page 36) is the *People* magazine of the industry, then *Home Entertainment* is the *Architectural Digest*, with just a touch of *New Yorker* and *Paris Match*.

The magazine was launched in the Fall of 82'. Its initial title was *Home Entertainment Quarterly*. It's now published six times a year. The approach used is somewhat experimental simply because the subject matter is too. The writing is top notch as *Home Entertainment* has managed to attract some *very* established authors from the various fields that make up its combined subject matter. Contributors include such people as Jane Wollman (*New York Times*), Martin Porter (*Gentleman's Quarterly*, *Rolling Stone*), Kathleen Lander (*Washington Post*), and so on.

The photography, meanwhile, is simply awesome. Looking at the various interiors, loaded with space-age electronics and designer furniture, one has the feeling that one has somehow gained a window into another (and perhaps better) world.

"Media Rooms"

The magazine is a die-hard advocate of what it calls "the media room," as the logcial successor to the living room and the place where all our new personal technologies will come together and blend. "We have features on the media rooms of celebrities," notes Editor Morrison. "We've done Barbara Streisand, Barry Manilow, David Brenner, and so on."

The Winter, 1983 issue — dating back to when *Home Entertainment* was a quarterly — contained "A Classical Setting Classical Music: A Visit with Sherrill Milnes." The final paragraph of the piece reads, "The home is truly a home for entertainment, where the electronic equipment has been chosen for fun and for purpose — and is suited to the needs of the family. The automatic record player can play 'things like Paddington Bear.' The reel-to-reel tape recorder plays Christmas carols at the appropriate time of the year. The large screen TV is suitable for videogames. And music is beautiful at any time. It's a home for work and leisure."

Other features and articles are roughly evenly divided between how-tos and buyer's guides. Articles have included such things as a tour of new designs in home phones ("How many phones do you need in your home? Plenty. New designs and new technology integrate telephones into the room."), a guide to selecting a television tailored to your lifestyle, essays on the virtues and drawbacks of large-screen TV, and interviews with leading video, audio, and computer professional willing to share a few secrets of their trades. The Winter issue, for example, contained, "Directing the Party: Ron Weiner, the director of the Donahue show, tells us how to video tape a party."

Particularly useful among the regulars are "Sources and Resources: Products for the home and programs for the products," a hard and software review that covers everything from the newest stereo system to deluxe joysticks. Also, be sure to check out the "Tomorrow Things: Products to Come, Both Sooner and Later" feature. With each issue, it looks at some of the technical developments that might be showing up in your home today — ranging from automatic tape recorders to robots as pets ("Androbot may never really replace the warmth and companionship of the household pet. Then again, it will never leave any nasty surprises on the living room rug, either.")

Audience

Clearly, with its vision of an age in which *every* home comes complete with a "media room," *Home Entertainment* is aimed at a rather affluent lifestyle. It appeals to a class of reader which is affluent enough to afford or, far thinking enough to plan for, the expensive combined technologies that grace its pages. This magazine will be enjoyed by those technologically sophisticated enough to embrace the radical innovations that are its subject matter, and yet not so "technocentric" that the excitment of technology rather than the application is the main concern.

If there is trend to be appreciated from *Home Entertainment's* success, it is that our society has firmly and finally come to terms with the *glamour* of personal technology — in rather the same way that our society's relationship with the automobile grew from being merely interesting in making it run, to the exotic appeal of the sportscar.

HOME ENTERTAINMENT

- Ownership: Home Entertainment Inc.
- Publisher: Vincent P. Testa
- Editor: Judith Morrison
- Managing Editor: Pamela Highton Castellano
- Distribution: National, available at any newsstand
- Representative Titles:
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  Entertainment Environments
  Tubes For Today
  Spirits and Snacks: Robert Alda and Flora Alda screen tapes of their children — and serve up some mean pasta.
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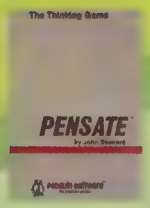

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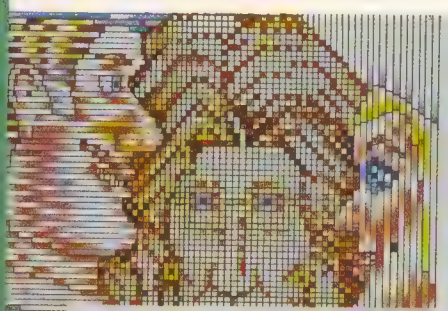
Micro Discovery

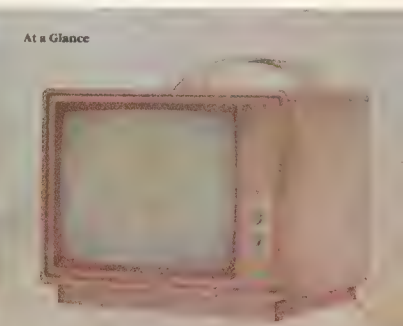
Reviewed by Michael Tucker

Of all the new personal computer magazines to hit the stands last year, *Micro Discovery* may be one of the most pleasant.

Relatively new (volume #1, issue #1 was July of 1983), *Micro Discovery* describes itself as the "Non-Technical Magazine of Personal Computing." This means that it's sort of the *Time* or even *People* magazine of the PC industry. Articles tend to be very general (you'll rarely find, say, a product report that doesn't apply to your individual micro somehow) and only marginally related to the interests of hard-core hackers (you'll *never* find, for example, printed software in the magazine). In fact, most of the pieces come with a little reminder that should the reader run across a term that's the least bit unfamiliar, then he/she may turn to "A to Z," a glossary in the back that lists even such terms as "disk drive" and "home computer."

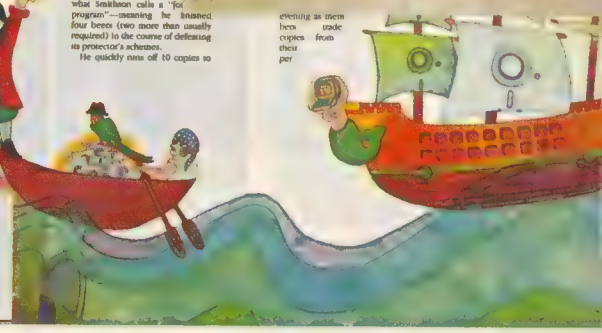
Micro Discovery can be thus a very refreshing read. By living up to that 'non-technical' subtitle with a vengence, the magazine has opened itself up to some remarkably good writing on some suprisingly diverse topics. In the few months it's been in operation, it's done articles ranging from a *Popular Science*-style description of solar sail projects, to a *Smithsonian*-type piece on the use of high technology in Egyptology, to a nicely thought out *Atlantic*-style essay on life in the 1950's ("... though it has been romanticized, life before computers was less human than today. Every routine task had to be done by hand; every machine had to be controlled by hand; every human communication had to be expedited by hand. The pressures for comformity were fierce ...").





Of Pirates, Plunder a

By Wayne Sage
Illustration by Mike Nichols



The Human Factor

One has the feeling that it's written for and by real human beings; men and women with an interest in computers plus the arts, the humanities, the pure and applied sciences, romance, history, business, and just plain fun.

Man and Machine

The link between the human interest and computers is a recurring theme for *Micro Discovery*. There's usually at least one piece per issue in which some celebrity describes his or her experiences with computers. The August 1983 issue, for example, featured humorist Art Buchwald's use of word processing technology. Actor Stacy Keach, meanwhile, appeared in the December 1983 - January 1984 issue — posing, in fact, in a Computerland t-shirt. Even George Lukas has graced the pages of *Micro Discovery*, in a September article on the use of high tech in film making.

Articles, when they are 'technical,' are very user-friendly. A regular feature is 'At A Glance,' usually done by one of the consulting editors, and always high-lighting this or that piece of equipment. In the September issue, for example, Robert R. Rhein's version of "At A Glance," — with some truly remarkable illustrations by Carol Etow — dealt with the floppy disk. Other "Glances" have detailed the basic disk drive, monitor, even the "complete microsystem." They're articles that would be worse than useless to someone already completely familiar with the terms and machines of the information revolution, but they're invaluable to someone who's new to micro-computer care and feeding, and who may need a certain amount of reassurance.

The Regulars

Columns, and there are several, are similarly unintimidating. They include such regulars as Mindy Pantiel and Becky Petersen's "The Computer Generation," on educational uses of computers; Brendan Boyd's "Taking Stock," a kind of cross between a business news section and micro applications guide; and Dr. Charles Spezzano's good tempered "The Human Factor," which can be best described as a kind of extended meditation on the relationship between personal computers and the human mind.

Several regular "departments" also add a bit of color to the publication. Among the most interesting of these are the aptly named "Pinstripes," notes on the electronic and computer industry; "Random Bits," short news items; "Emporium," which is described as "sundry new products"; and, finally, "And Beyond," a column of futurism and other shrewd guesses.

There's even a very comforting section entitled, "Q And A," which may be the "Dear Abby," of the age. Readers who've been unable to find answers to technical questions at their local computer outlet (or even, who've been a bit shy of revealing ignorance of basic subjects) can take care of their queries though the faceless and face-saving medium of the public mail.

The artwork, meanwhile, has been consistently superb. The cover photos, particularly, have been notable for a gentle and quite clever use of parody. The September issue, for instance, showed a Norman Rockwell schoolgirl, complete with pigtales and a jump rope, sitting in a classroom — before a computer. The December 1983 - January 1984 edition featured a benevolent Leonardo da Vinci sketching a giggling Mona Lisa — with a light pen. Perhaps, though, the most striking material was inside that December-January issue — a gallery of computer-generated or computer-modified photos produced by high tech artists and currently on display at the Long Beach Museum of Art.

The Audience

In effect, *Micro Discovery* is a new kind of magazine — a computer publication which is also a general interest piece. One has the feeling while one reads it that it's written for and by real human beings; men and women with an interest in computers *plus* the arts, the humanities, the pure and applied sciences, romance, history, business, and, just plain fun. Indeed, *Micro Discovery* may be rather important on a social level. It could represent the ultimate domestication of the computer. It's readers may or may not be able to program, may or may not understand the hardware involved, and probably don't care to, but they have made micros part of their lives —just as they may not be particularly enthralled by internal combustion engines, but never-theless drive.

In any case, *Micro Discovery* is bound to have an impact on the publishing industry. After all, mainstream magazines are beginning to devote at least some time and space to computers, just as they've devoted a little energy to television and automobiles. Perhaps, by being a speciality magazine that's really quite general, *Micro Discovery* will set the standards of reporting for the genre. When *People* magazine really does a "Computer," section, when *The New Yorker* lumps micros in with the minks and jewelry in their "Best Gifts," section, when *Life* does a spread on the most fashionable new computers of the year, perhaps they'll turn to the example already set by *Micro Discovery*.

All in all, *Micro Discovery* seems an enjoyable and interesting investment. It's probably not the *only* computer magazine to which a computer user would want to subscribe. More likely, it's a better second or third magazine. A person could have one — perhaps *Byte* — as a technical reference; a second — perhaps the *SoftSide* you have in your hands — as an overview of the entire personal technology industry; and a third, *Micro Discovery*, to add a touch of human to the machine.

MICRO DISCOVERY

- Publisher: Dennis Trombley
- Editorial: Donna Friermuth, Editor. Michael Wenberg, Managing Editor. Elliot W. King, Jane Kozumplik, Assistant Editors.
- Circulation: Kenya Starr Sagy
- Address:17406 Mount Cliffwood Circle, Fountain Valley, CA 92708
- Phone: (714)641-8515
- Ownership: Micro Digest, Inc.
- Approximate Length per issue: 80 pages
- Distribution: National, availible at newstands
- Cost: $2.50
- Representative Articles:
  Michael Crichton's Electronic Life
  "The '50s: The Way We Weren't,"
  "Yacht Racing: Tracking the Winners"
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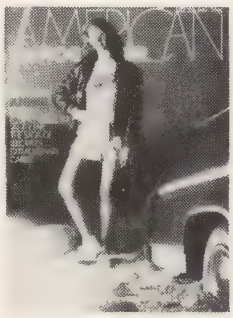
12

AT A GLANCE

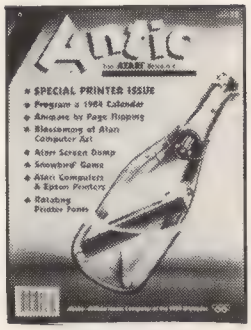
A+

This issue is filled with finance-related articles and material. Feature articles cover how how to do your banking from home; four financial programs that expand your calculating abilities; computerizing your checkbook; and how firms use micros to forecast the future. There's also a touching story of how a stroke victim is recovering with the help of a computer, and an interesting piece on how computers are being used to make shipbuilding and design an exact craft. And if you've ever wondered what it's like to work for Apple Corp., you'll find out in this issue. Their female workers tell all.



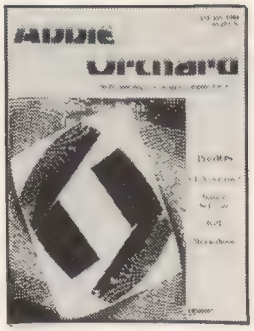
AMERICAN PHOTOGRAPHER

The cover story is "Annie," a profile of "the queen of celebrity photographers Annie Leibovitz." Also included is a gallery of some of her most striking work, notably portraits of Lauren Hutten, Woody Allen, John Belushi, Bob Dylan, Keith Richards, Bette Midler, and Mick Jager. Other features include the startling landscape photography of Chris Rainier and an interview with Bob Peterson. Don't miss "Working Papers" department, which contains some of the best (and only) photos to come out of the invasion of Grenada.



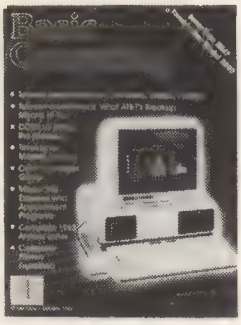
ANTIC

This month's "Antic" is their "Special Printer Issue." Features include, "The Blooming of Computer Art: Create it with your Atari and a printer," and a long survey of printers currently on the market for the Atari ("It's probably as hard to pick the right printer as it is to pick the right computer.") There are also features on the NEC 8023 printer, rotating type fonts, disc label printers, a survey of recent cartridge games, and the use of Epson printers with Atari products.



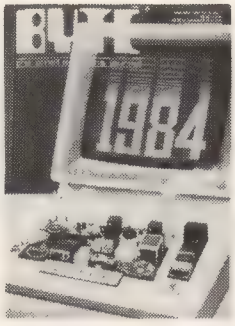
APPLE ORCHARD

Is CP/M for you? Andrew Niemic gives you the information to help you decide for yourself. The issue also presents articles on Apple's new operating system, ProDOS; on how to build your own Z80 card; how to get true sixteen-color hi-res on your computer; and how the dot patterns produce colors. In addition, coverage is given to S.A.M., a low-cost voice synthesizer; the EPS keyboard; and the Apple dot-matrix printer and Burtronix printercard.



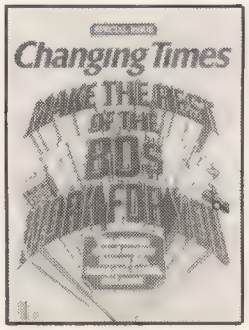
BASIC COMPUTING

Radio Shack shocked the industry with its announcement of the Model 2000, a seeming challenge to the IBM PC. Cameron Brown takes a scrutinizing look at it and answers the question, Is it really better than the IBM? Other features include, an interview with Chuck and Debbie Tesler, the forces behind Prosoft; an alternative operating system for the Model 4; what AT&T's breakup means to you; and how to make your programs run faster. There's also an article index for 1983.



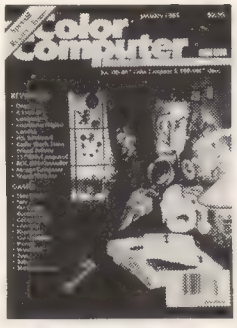
BYTE

The overall theme of this issue is "Future Trends." A particularly interesting article is G. Michael Vose's speculation on "1984." Equally appealing pieces deal with a general purpose robot-control language, 32-bit microprocessors, Memory Cards ("These miniature minicomputers could become the most popular portables"), computer-aided Design, software bus developments, speech regonition, natural-language programming, new portable computers, and integrated software.



CHANGING TIMES, The Kiplinger Magazine

In this special report, learn how to make the rest of the '80s work for you and become financially secure. There are articles on a wide variety of topics, including advise on born-again growth issues; how to hedge your investments with such tangibles as gold or real estate; the volitile job market and how to beat it; an outlook at college tuition; and predictions on the health-care market. There's also an article concerned with retirement planning and saving for the future.

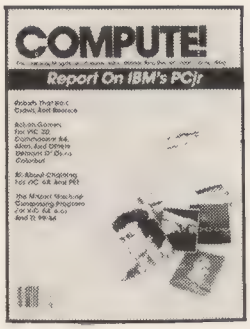


COLOR COMPUTER MAGAZINE

The January "Color Computer" is a "special review issue." Games reviewed include Time Patrol, Fury, Fire Copter, Buzzard Bait, Calixto Island, Glaxxons, Hyperzone, Gin Champion, Pooyan, Wizard 64, Zeus, Babylon, and Starship Hercules. Other reviews include the Dragon 64 computer, the Microneye Digital Camera, the HJL Keyboard, the Radio Shack Daisy Wheel printer, and the RDC Disk Controller. There's even a look at CompuServe. In addition, there are articles color computing for young people and "Fifteen Database Managers."

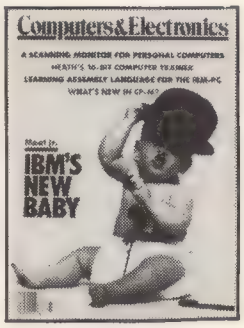
COMMODORE
Microcomputer Magazine

This month's issue takes the silicon chip as its theme. Features include, "In the Chips," an examination of the history and manufacture of silicon chips; "Millions and the Microchip," a look at the size and speed of modern chips; "The Logic of Bits and Pieces," the second half of a series on two-state logic; and "6502 Op-Codes," which is described as "For the more technical among you, we've provided a list of all the 6502 op-codes with a description of what they do and how they affect the status register."



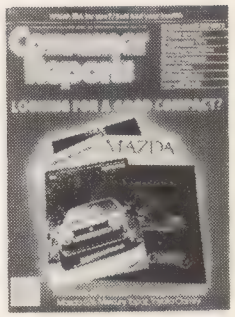
COMPUTE!

Fred D'Ignazio takes you into the halls of the Robotic's Institute, where robots that crawl, roll, and bounce are researched and created. There are also features on the future of synthetic music; a special report on IBM's new PCjr; and the strange relationships that develop between humans and robots. Software reviews of Pal, Robot Runner, Blue Max, etc. are included as well, with a special viewing of two programs: Demons of Osiris, and Colorbot.



COMPUTERS & ELECTRONICS

The cover story is, of course, a review of the IBM Pcjr. Other features are a review of the CompuScan /2100 scanning reciever system from the Electra Company ("Interfacing a computer with a radio"), an update on developments in CP/M, a review of the new Healthkit/Zenith 16-Bit "learning" computer, an article entitled, "Getting Started in Personal Computing", plans for an Atari tape interface, a primer on assembly language for the IBM PC, and an article on converting programs for the Vic-20, PET, and Commodore 64 computers.

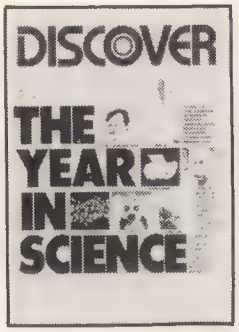


CONSUMER REPORT

Looking for a good compact car? If so, then you've come to the right place. This month's issue is devoted to coverage on compacts and what you should be aware of when shopping around. There are also articles on how to keep warm in bed, twelve ways in which to build an IRA nest egg, and an update on washing machines. On the health side, you can learn the truth about salt and high blood pressure, and how to keep an eye on the salt content of your diet. In addition to this, there's an informative look at color TV's and gas and electric ranges.

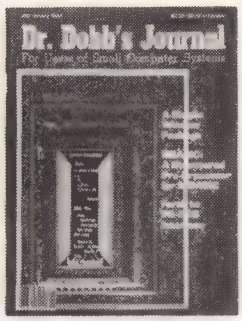
CREATIVE COMPUTING

The over-all theme of this month's "Creative Computing" is "Notebook Computers." The special section begins with "Choosing A Notebook Computer," and "The Ultimate Notebook Computer." A longer piece looks at 14 different notebook computers. Individual articles then go into more detail on the Sharp PC-5000, the MicroOffice RoadRunner, the Teleram T-3000, Cromemco C-10SP, the Commander Keyboard, games for Atari, "Microprocessors in Consumer Electronics," and "Four Word Processors for the Home."



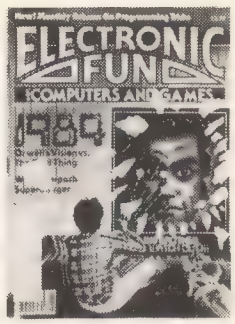
DISCOVER

The editors start off the year with a fourteen-page scrutinizing, wrap-up look at the events of 1983. Feature articles include the discoveries of IRAS; women in computers; designer drugs that can be absorbed through the skin; a biographical look at the Scientist of the Year, Carlo Rubbia, the discoverer of W and Z particles; and a close view of the snowflake, nature's most alluring legerdemain. And in addition to the regular columns and departments, there's also an index to all the articles published by Discovery in 1983.



DR. DOBB'S JOURNAL

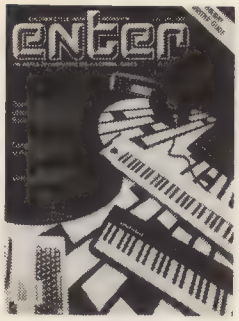
Ever heard of NBasic? It's a structured pre-procesor for MBasic and Namir Shammas tells you all about it, features, capabilities and all. There's also a simple window program you can use; a method of getting Forth to access the resources of MSDOS; a sorted disk directory for the IBM PC; and a way of making a popular video editor for DEC's TOPS-20 system capable of accepting WordStar commands. And there's the book and software reviews for you to read when you're done with everything else.



ELECTRONIC FUN

Is "Big Brother" watching you? Suzane Prince voices her views on just how prophetic Orwell was, and how close his 1984 matches with the "real 1984." Other features include, where to sell your wares in order to make a fortune; a look at FORTH, a language so fast that it makes Basic look like it's standing still; how to create custom characters; and an interview with Randy Glover, designer of "Jumpman". There's also a contest. The prize? A Starpath Supercharger and a complete library of Starpath games.

AT A GLANCE



ENTER

Football isn't all brawn anymore. Computers are taking their spot on the gridiron too. Norvell Brasch tells you how computers are being used by the professionals. Other articles include, an interview with Thomas Dolby, who produces music with some help from computers; how major rock bands are using computers in their music; and a holiday buyer's guide to game systems. Also, the top video games of 1983 are reviewed and receive their grades.

FAMILY COMPUTING

The cover story of this issue is "Fun In the Sun," a discussion of computer education camps offered by none other than that holiday landmark "Club Med:" Reviews include Coleco's Adam and IBM's PCjr. Other features deal with getting your computer repaired and the use of spreadsheet software in the home.There's also a buyer's guide to mass-storage devices and human interest stories on one family's introduction to computing, software artist Guy Nouri, and "how a TS 1000 data-base helped bring WWII vets together for a grand reunion."

HIGH FIDELITY

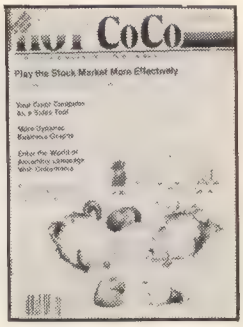
What's it like to be a car-radio installer? Gary Stock spent a few days finding out and reveals all in his article, "The Autophile." Other topics of interest include, cassette-splicing advice; new audio and video gear unveiled at the Tokyo Audio Fair; a behind the scenes look at Digicon '83; and more. There's also a comparative guide to choosing a portable VCR/camera setup that you might be interested in reading as well. And as always, there's classical and popular music reviews to sooth the savage beast in all of us.

HIGH TECHNOLOGY

This month the folks at Commerical Warf (Boston) bring you "Computers that think like experts," where knowledge-based systems are tackling problems that once required human expertise. Additional features include a piece on recent advances in semiconductor laser technology and applications, an article about the use of computers by chemists to "design molecules," and finally, an article on the mechanics and uses computer pointing devices ("Now you can point with everything from fingers to trackballs").

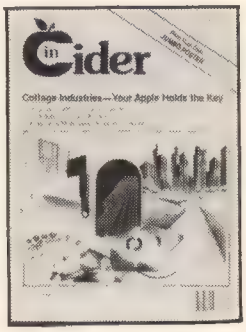
HI-RES

"Hi-Res" is a relatively new magazine (this is issue 2) devoted to Atari game and computer users. Printed code includes "Number Maze", an educational game, and "Music Theory Drill." There are also articles on error messages and their translation into English, video game designer David Crane ("The Video Game Guru You've Never Heard Of"), educational software, and the computer as part of an average family's daily life.



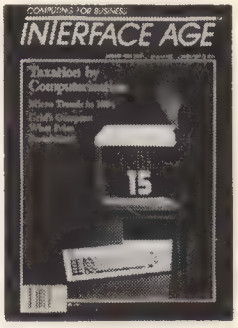
HOT COCO

This month's "Hot Coco" has a business flavor to it. Articles include reviews and evaluations of data-base managers for the small business person, as well as printed code for a sales tracking program, a stock transactions tracking program, a payroll program, a savings program, a mailing list program, and a loan analysis program. There are also articles on keeping one's code secure, assembly language, and ROM hardware.



INCIDER

This issue focuses on the growing cottage industry. Between the covers you'll read about how to run a data management service out of your home; how to use an Apple to professionalize your next writing assignment; how to be a finacially-successful computer consultant; and how to operate you studio more efficiently with an Apple. There's also coverage of Apples in education; poster-sized printing ability; and an alcohol-test program that keeps you away from the wheel and alive.



INTERFACE AGE

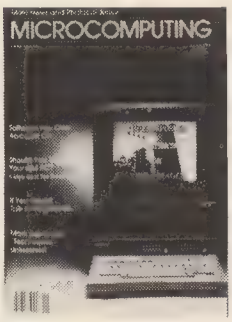
Special Reports deal with 1984 and the future of micro-computer industry and tax calculation software. Highlighted reviews include "Starburst: MicroPro's Sophisticated Management Tool" and "Grid's Compass: Worth its Weight in Gold?" The Implementation section contains "Managing a Word Processing System" and "Computerizing a Building Supply Business."

80 MICRO

The editors take a glimpse at the world beyond TRSDOS with their coverage of Radio Shack's Model 2000. They look at its features and capabilities, and available software for it. Other articles cover a program that lets the handicapped use the Model III for word processing; how to write braille on a dot-matrix printer; a speech board that let's you converse with the Model I and III; and a look at the Model 4's Memdisk. There's also the debut of a new hardware column. This month's project? A micro-to-mainframe communications board.

MICRO DISCOVERY

Computers aren't just for business-minded people. Artists are reaching for a computer instead of a brush to do their painting. Kira Perov showcases the selected computer works of several artists. There's an article that discusses why software for one computer won't work on another, and an article on the rising epidemic of computer piracy. Afraid of the future? Isaac Asimov lays your anxieties to rest in his article, "Fear Not The Future." And for the technically-minded person, there's a quick look at the least tempermental part of your computer: the monitor.

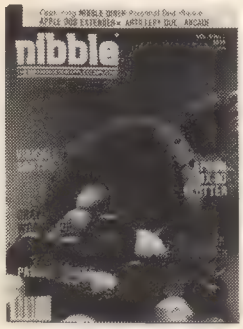


MICROCOMPUTING

The month's "Microcomputing" is a graphics issue. Articles in the theme include graphics and Sony's SMC-70, the use of business graphics, Telidon graphics, CAD-1 ("What A CAD! The Robographics computer-aided drafting system"), the use of Apple Pascal graphics in games, and "The Good, The CAD, and The Apple ("Your computer may not be a pencil, but it does offer graphic advantages that a pencil cannot."). Other articles include a look at the legal aspects of taking your computer off your taxes.

MICROKIDS

This month's issue of the ever colorful "Microkids" begins with "Isaac Asimov on the Dawning of a New Era." Other feature articles include "Computer Piracy: Hollywood Style," (an examination of the movie "Wargames" and its real-life counterparts), a profile of 17 year old "computer whiz" Tim Knight (who, we might modestly note, has been a columnist for "SoftSide"), a review of Coleco's Adam, two articles on computers in space, and a discussion of game tactics for Super Pac-Man.



NIBBLE

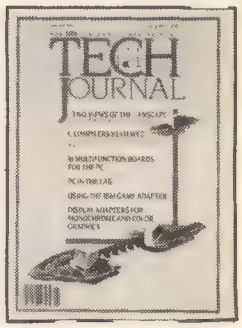
The cover story for this month's issue is "Nibble Diner, Personal Diet Planner," which is described as a food database management program. Other featues include a look at modular programming, the epson MX-80 plotter, the legal aspects of bankruptcy ("If bankruptcy looms, knowledge of the facts can help put you in control"), a demonstration of machine language speed, a method of discovering how much space is left on a disc before attempting to SAVE, and game reviews of Artillery Duel and Black Box.

OMNI

Ever wonder how your tongue and nose transmit the data of wine and roses? You'll find out how in "Smell Lab." Other feature articles include the new technology of interactive-video disk games, which bring realism to the screen; the quest for a cancer vaccine; and a pictorial of 1983's worst scientific achievments. In their trivia column, "Continuum," you'll learn of a remedy that is almost guaranteed to stop your hiccups. Fun and information, as usual.

PC

Wouldn't it be nice to work out of your home? Well, Paul Somerson introduces you to some of the first workers who commute via computer. The issue also includes, an interview with the co-author of Cobol, Capt. Grace Hopper; charting and record-keeping programs that help you get the most out of the Dow Jones network; Lisp for the PC; how to design an automated office; computer law; making computer-synthesized music on the PC; and what PC-DOS 2.0's file structure can and can't do.

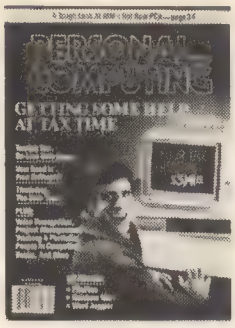


PC TECH JOURNAL

The year gets off to a strong start as this issue provides coverage on such items as four multifunctional display adapters and a look at multifunctional boards for the IBM PC. You'll also learn of a few IBM diagnostic tests, and take an inside look at Basic. In addition, two series continue to tutor you in the C-compiler and interrupts for the PC. And of course, there's always those news releases and legal briefs to read up on as well.

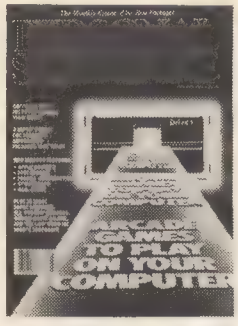
PC WORLD

Michael Ham takes an interesting look at expert systems, a branch of artificial intelligence that's becoming more and more intelligent and independently thinking. Other articles cover Microsoft's new window concept; variations between the 3270-PC and the XT/370; a device that turns your PC off and on automatically; and whether or not your VDT is hazardous to your health. And for the writer's out there, Jeremy Hewes gives you 22 tips for writing in the computer age.



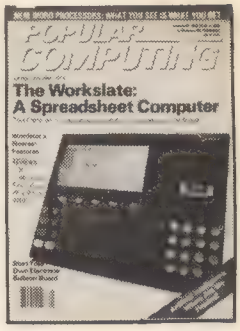
PERSONAL COMPUTING

This issue's special report is 'a tough look at IBM's Hot New PCjr.' Features include a tour of on-line data bases, and articles on computing and taxes, data security, 'Training People To Use Their Computers,' stock market software, making project management more effcient with computers, and computers and your hobby. Reviews include a look at the "Word Juggler IIe," "Rainbow 100", and "FilePlane."



PERSONAL SOFTWARE

January's buyer's guide to software everywhere begins with "Dreaming Of Arcadia," a look at the arcade game "phenomenon." Reviews include (among many, many others) a look at the games "Critical Mass," "Pinball Construction," and "Lode Runner;" the educational programs "Spellagraph," "Beagle Basic," and "Hands On Basic;" the home management software "Dollars And $ense" and "Money Street;" and the word processors "Superwriter" and "Apple Writer II."

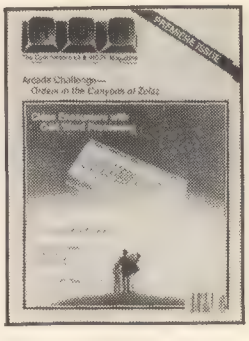


POPULAR COMPUTING

January's issue has the Convergent Technologies Workslate portable computer as it its cover story. Artifical Intelligence shows up as the theme in articles entitled, "Making Computers Smarter," and "Nothing Artifical Please," ("To build an Intelligent machine, we'll have to get a whole lot smarter"). Other articles deal with new word processors on the market and the grand old program of the field, Wordstar. "Creative Writing with Computers," deals with word processors' effects on the writer, while "Giving Unemployment the Boot," discusses a Bergen County, New Jersey, high tech retraining program.

POPULAR SCIENCE

They were the talk of the '70s, whatever happened to solar cells? Jeanne McDermott did some research and reports some startling findings in her article. Other articles of interest include: harnessing the Magnus effect for ship propulsion; a semi-submersible fire engine that battles platform fires in places like the North Sea; a house constructed entirely of foam; the king of compact 4-wheel drives; and a look at integrated, do-everything software.



RUN (Premier Issue)

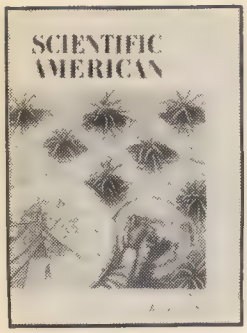
"Run" is a very new magazine devoted to the Commodore 64 and Vic-20. This month's "Run" (the first, it's vol. 1, number 1) takes word processing as its theme, and the cover story is entitled "C-64 Word Processing Demystified." Other features include articles on converting V-20 software to run on the 64, printed code for game and educational software, and an article on programming tricks for Commodore machines.

SCIENCE 84

A fun issue this month. The cover story is "Loco Notions of the Future," an examination of the "futurism" of yesterday. It's subtitled, "If This Is The Future, where's my 13-hour work week, personal helicopter, household robot, air-conditioned street, and autopilot car?" Other features deal with computer scientist Edsger Dijkstra, insect predators, the heart-lung machine, life in Antarctica, cosmologist Alan Guth's model of the creation, and fossil evidence of a link between man and the orangutan.

SCIENCE DIGEST

The cover story of this month's issue is "Exploring the 11th Dimension." The piece, along with the similarly titled, "The Fourth Dimension," discusses the possible existance of higher dimensions than the standard three, and their relationship to the human world. Other features include "The Planet Hunters," a piece on carbohydrates, and "The Most Important Stories of 1983," a long and interesting wrap-up of the most important developments in science, technology, and straight news in the year.



SCIENTIFIC AMERICAN

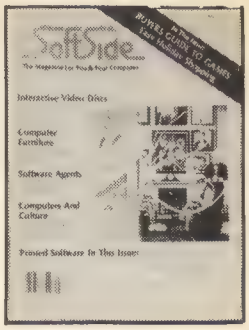
This month's cover story is "Rice," an examination of the food-crop which is the staff of life for the vast majority of the human race. Other articles include examinations of unisexual lizards, the history of the invention of the balloon in relation to the birth of modern chemistry, the control of ribosome synthesis, the packing of spheres, high-energy collsions between atomic nuclei, "Launch Under Attack," and "The Atmospheric Effects of El Chichon."

SKY & TELESCOPE

The January issue begins with "The Frigid World of IRAS," an examination of the Infrared Astronomical Satellite observatory that went into orbit last year. Other features include "Brighter Prospects for Halley's Comet," and the spectacular "Target: Tunguska," which argues that the cause of the mysterious "Tunguska" explosion in Siberia in 1908 was a stoney asteroid and not — as argued by Czech astonomer Lubor Kresak — a cometary body.

SOFTALK, APPLE

It isn't a lot different from its predecessor, but the Apple III Plus has its own exclusive and devoted family. David Durkee tells you all about it. There's also coverage of Apple's new ProDOS; an inside look at Apple's Education Foundation; and the computer industry's predictions for the future. In addition, you are given the opportunity to cast your vote for the most popular program of 1983. An article index for 1983 is included.

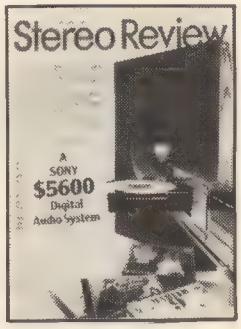


SOFTSIDE

This month, "SoftSide" takes interactive videodiscs as its cover story. In "Entertainment For the Eighties," the magazine discusses educational and entertainment interactive videodiscs currently on the market, and speculates on those that might be soon. Additional articles deal with the future of the telephone, computer furniture, system paranoia ("here are a few tongue-in-cheek tips on how your computer can help you create the climate"), a review of the game "Witness," the use of computers to set up and govern your personal IRA, and software agents.

SOFTWARE SUPERMARKET

Everyone wants to be in good physical health. Joanne Halligan takes a look at the fitness software programs on today's market that can help you do just that. Also included in this issue are articles on, how to trace your roots by computer, complete with an interview with "Roots" author, Alex Haley; advise on how to avoid disk disasters; stargazing software; and a buyer's guide to children's math programs. In addition, there're a few tips given on how to select the telecommunications software that meets your needs.



STEREO REVIEW

There's a certain method — a special touch, if you will — to handling your audio dealer, and Steve Booth tells you what it is. Not all compact discs sound great, so David Ranada takes a look at the best 25 compact discs on today's market; it'll save you time and money. And if you ever have wanted to know how to use an equalizer, Craig Stark tells you how to do so properly. There's a 1983 article index in addition to the regular columns on classical and popular music reviews.

VIDEO

You all remember "Dragon's Lair" don't you? Well, Lancelot Braithwaite takes the first hands-on evaluation of the new compact, solid-state laserdisc player. Other articles include a look at those one-man (person?) shows who can fill the screen without anyone's help, such as Olivia Newton-John and "Barely Man-Enough;" and an examination of future films on cassette and disc for 1984. There's also their regular features, as reviews of film and video clips, the top 10 programs, news and views, and much more.

VIDEO REVIEW

Computer privacy is a controversial subject, and the editors have two special reports on what it's all about. Feature articles include an inside look at equipment service centers; past video cults; and buyer's guides to lenses, filters, and TV clubs. There's also a nostalgic-look at Betty Davis; feature reviews on new prerecorded releases; and a special look at IBM's first PCjr software, in addition to other computer-software reviews. And of course, there's always their television reviews for the month.

Other Windows, Other Rooms

by Michael Tucker

Windows . . . They're a concept as well as a piece of glass. Think of the poets, artists, even film makers who've used them as a symbol. (Remember *Citizen Kane*? Remember the opening shots through the windows of his parents' cabin? Remember the final scene with "Rosebud" framed in the fatal window of the furnace?) Think, in fact, of the recent discovery of windows as the preferred model of an even 'friendlier' user-friendly soft and hardware currently coming on the market. Microsoft has an entire program named "Windows." Visicorp, Apple Lisa, and Wang, have followed suit with "window management" to describe their newest attempt to keep data the servant of we poor computer users, rather than athreat to our sanity.

It is, in fact, with the same intent that *SoftSide* decided on "Windows" as the name of its new magazine review section. The magazine wants to become the menu of a large data base, — a quick, clean, humanly organized, and highly accessible information resource to which readers might come for an overview of data on a multitude of subjects. In effect, we mean to be something like the screen of a Lisa; a collection of information-charged "window panes" that an individual could "open" to obtain detailed information, or leave "closed" so as not to be distracted by unnecessary data.

And, above and beyond *SoftSide*, there's something profound in all this talk of windows. In a very real sense, our information technology is making it possible for us to return to truly "encyclopedic" wisdom.

This isn't to say that we are absorbing the whole of the *Britianica*. But, it is to point that the meaning of the word "encyclopedia" has changed in the last couple of centuries. Originally, encyclopedias and "encyclopedian" educations were organized by theme rather than the alphabet. It made no sense to, say, an eighteenth century scholar to lump "Aardvarks" together with "Apples" just because they happened to have the same first letter. It seemed far more reasonable to them to set up their texts and their minds in such a way that similar ideas blended into one another, so that "physics" and "chemistry" were only a few pages or a few memories apart.

The shift to the current system came about at roughly the same time as the French Revolution. Suddenly, people began to suspect that Chemistry and Physics might not be logically and inevitably linked in the mind of every human. While it might be philosophically satisfying to organize information by commonality of theme, it also made finding a specific subject maddeningly difficult. Aristocrats might have twenty years to spend savoring the full meaning of this or that principle of engineering, but bridge builders were in a hurry.

So, we entered a more utilitarian age, and our minds (or at least our encyclopedias) were organized by the alphabet, or by other easily learned but wholly arbitrary systems.

In terms of information processing, it was a genuine advance. It's quite likely that more and better thinking is done within artificial structures than any of the "natural" ones suggested by eighteenth century scholars, — and yet, we have to wonder how many great insights we've missed because our systems separated concepts that were really alike. Would physics, for example, have taken quite as long to develop the idea of quantum mechanics (in which some sub-atomic matter acts sometimes like a wave, and sometimes like a particle) had we not been so eager to make "waves" and "particles" completely different phenomena?

WINDOWS

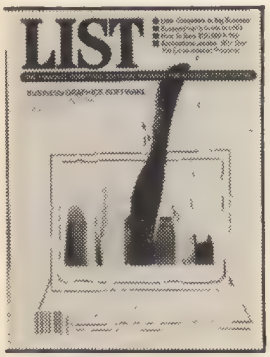
Edited by S. F. Tomajczyk

You are a busy person. The stacks of unread magazines on your coffee table attest to that. As much as you'd like to curl up on the couch for a night and catch up with your reading, you just can't find the time. Well, now you can with *Windows*. This section windows important feature articles and essays from a diversity of magazines on today's market that you just should,'t miss out on. Now go clear that stack of magazines off your coffee table and put your feet up . . . ***SoftSide*** is all you need for the next couple of hours.

How Uncle Sam's Electronic Mail System Works

You just finished writing a two-page letter. You pick up your phone, press a few keys, and the next morning your communication is delivered as a hard-copy letter to the desk of which it was addressed to. Diana Geutzkow tells you everything you ought to know about E-Com, an electronic-mailing system courtesy of Uncle Sam's Post Office. She not only tells you how E-Com works, but shows you how you can use it for either yourself or your business. (*List*, December 1983.)

". . . E-Com is an important stage in the evolution of electronic mail."



How A Microcomputer Can Be A Micro Tax Shelter

Vernon K. Jacobs, a CPA and author of *Tax Breaks For Computer Buyers*, shares his wealth of knowledge with you on how to turn your computer into a micro tax shelter. (*List*, December 1983.)

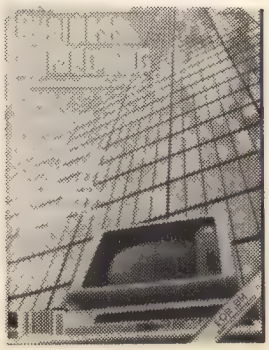
"All tax shelters require debt to produce deductions in excess of the cash invested. Without debt, there are no defensible tax shelters that will produce tax deductions in excess of the amount invested. The tax-free income from mosttax shelters represents cash distributions of income that are offset by non-cash deductions, such as depreciations or depletion."

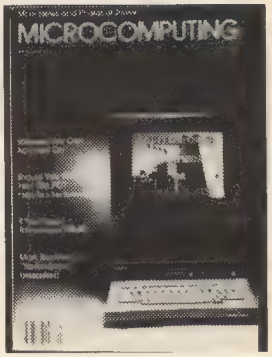
Who Owns Your Business Software?

You might not know it, but if you're the owner or user of business software, you're caught in the middle of a no-win situation. Precisely what your rights and liabilities are against a manufacturer or software vendor are presently unclear. You'll find out why when you read this article by Herbert Swartz, a legal consultant specializing in computer software issues. (*Business Computing* January1984.)

"Manufacturers are operating in a legal wonderland."

"It's unreasonable to hold users to a licensing procedure just because a lot of fine print told them they were really licensing what they thought they were buying."



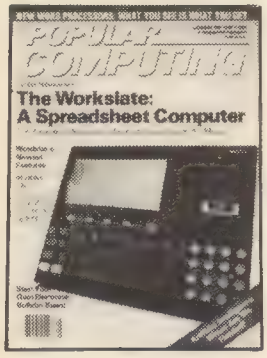


Writing Off Your Computer

Guess what? Your computer might be tax deductible! Donald V. Saftner and Cherie J. O'Neil, two tax experts, tell you who qualifies and how much you can expect to get from dear Uncle Sam. They also give you a few helpful hints on deducing your deductions, and discuss some special tax situations that you might be eligible for. Overall, an impressive and very useful article. (*Microcomputing*, January 1984.)

"It isn't necessary to show that a profit was made, only to show that the *intent* was to make profit."

"Tax savings can dramatically reduce the after-tax cost of a computer."



Know Your Rights

Ever bought software or hardware that didn't operate as advertised and the manufacturer refused to replace it because your "limited warranty" had expired? A. Richard Immel interviewed two computer-law attorneys and shares with you their advise on how to protect yourself in case of legal problems. (*Popular Computing*, January 1984.)

"Disclaimers are manufacturers' attempts to lessen liability, but they are faring poorly in the courts."

"Printed contracts look final and very formidable, but there's no law against writing in your own terms."

Making Computers Smarter

Just how close are we to creating computers that are more intelligent than we are? John O. Green takes a look at the controversial field of artificial intelligence and uncovers the answers to the questions many of us have concerning smarter-than-thou computers. (*Popular Computing*, January 1984.)

"Whether or not the Turing test really tests for intelligence is debatable, but it does show that computers have increased their power to mimic human capabilities."

PC Piracy: Growing By Leaps And Boundaries

Martin Porter knows where you can get popular software programs such as WordStar and dBase II for about $4. Only you'll have to visit Hong Kong to get them. Porter examines the growing black market over there for counterfeit software and hardware. The information he supplies you with should be required reading for everyone today. (*PC*, January 24, 1984.)

"Hundreds of dual-processor machines, which can run both IBM and Apple software, already have been seen in Hong Kong markets."

Playing By The Rules

While we have not quite yet reached the age of truly intelligent, independently-thinking supercomputers, we ***are*** beginning to integrate expert systems (a branch of artificial intelligence) into our lives today. Michael Ham disrobes the expert system for what it really is by showing you how they work and how they are being used by today's professionals. (*PC World*, January 1984.)

"SRI International, developer of *Prospector* (an expert system that evaluates geological sites for mineral deposits), selected experts who were specialists in different classes of ore deposits. Because of this collective knowledge base, *Prospector* performs better than any single, human expert and, as a case in point, recently predicted the location of a $100 million molybdenum deposit."

Bye-Bye Qwerty

If you do a lot of typing, you're more than familiar with the curse of Qwerty: aching wrists, arms, neck and shoulders. Gary M. Kaplan reveals the cure for this — Dvorak, an ergonmically-designed keyboard. Besides telling the pros and cons of this keyboard and its birth, he also tells you where you can get it and training programs for your IBM PC. (*PC Magazine*, January 24, 1984.)

"...computers will spur Dvorak acceptance, something that wouldn't happen if only typewriters were involved."

The Source For Magazines

One of the drawbacks to subscribing to a magazine is that the back issues usually end up either scattered about the house or stacked on the coffee table. Alfred Glossbrenner offers you an alternative to this, electronic magazines. In this piece he takes a close look at two new electronic magazines for the IBM made available to Source subscribers. In addition to reviewing and discussing the editorial contents of these magazines, he also provides you with helpful information on how to access them easily. (*PC Magazine*, January 24, 1984.)

"In addition to fast-breaking news, you'll find a multipart tutorial on telecommunications, commentary on the industry in general, and the IBM PC Forum, a column designed to help readers with the technical questions they submit."

WINDOWS

Thwarting The Data Thief

Computer enthusiasts, armed with no more than a personal computer, a modem, and some home-grown knowledge of computer access, have broken into hundreds of business and government computers. Such a scenario even became the plot for *WarGames*. How is all this possible? And what can be done to prevent it in the future? Arielle Emmett attempts to answer these questions in this article. (*Personal Computing*, January 1984.)

"Although many computer systems do indeed set up different types of barriers . . . an inventive hacker can usually bypass these . . ."

"Personal computers are a little unguarded bonanza. The technology has outstripped everybody but the guy who has a smart idea of how to rip you off."

"There isn't a nation on Earth that doesn't intercept other nations' communications . . ."

Dialing Into Data Bases

You can literally have the world at your fingertips. Craig Zarley shows you how. In this easy-reading and fun article, he uncovers the wonderful new world of data bases: How many of them there are, what features they offer, and how to get started with them. (*Personal Computing*, December 1983.)

"If you're on-line with one of these data services, you can have at your fingertips a significant portion of human knowledge. With a little strategic planning, you can instruct your computer — no matter what kind you own — to sort through and find the information you need on any topic you can imagine."

Mail Call, Mail Call!

What exactly *is* electronic mail? Everyone's using it, but Kevin Strehlo talks about it in this interesting and illustrative piece. He not only highlights the features and capabilities of the electronic-mail system, but illustrates its use and success with actual case histories. And, as a definite bonus, a buyer's guide to communication software is included just in case you're interested in the various packages on the market. (*Personal Computing*, December 1983.)

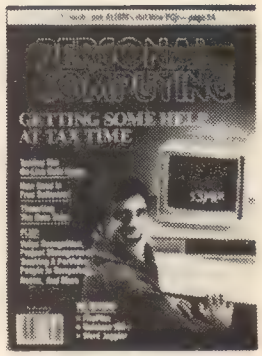
"There's no question: Electronic mail has increased the professionalism of the agency."

"You don't need a network to benefit from electronic mail."

How You Can Help Your Hobby

Whether it's stamps or birds or coins, there are ways for you to use a computer to make your hobby more fun, relaxing, and productive. Lynn Walker tells you how you can benefit from computing, how you can tell if your interests lend themselves to computing, and whether or not the benefits will outweigh your efforts. She accompanies this information with real-world examples of people who do use a computer in their hobby. You'll find this article helpful and interesting. Happy Hobbying! (*Personal Computing*, January 1984.)

"The benefits of using your personal computer in conjunction with your hobby are many: You can save hundreds of hours of sorting, logging, and tracking, which frees you up to spend the extra time enjoying the more creative aspects of your hobby."



How To Market And Protect The Software You Write

So you've written a helluva good program have you? And you suspect that it might even interest some software houses enough to copy, distribute, and promote it? Well, just how *do* you go about marketing it to a software house? And more specifically, what legal steps should you take to protect your rights to this software? Trudy Bell, in consultation with Paul S. Hoffman, a computer lawyer, discusses these questions in an informative and eye-opening manner. (*Personal Computing*, January 1984.)

"To protect the software you write, you must set up safeguards right from day one."

"As remarkable as it may seem, the language in which you write your program affects the confidentiality you can maintain — and the legal rights you can protect."

Staying Ahead Of The IRS

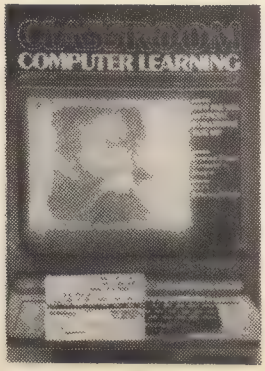
Save mental anguish and money, *and* get a free meal on Uncle Sam. How? Karen Freifeld knows, and she shares her information in this article on computer-tax programs. She covers the pros and cons of such programs, their features, capabilities, and applications, and she lists in a buyer's guide all the tax preparation software for your perusal. If you have some anxiety about your tax returns, you should read this article, it packs a lot of valuable information. (*Personal Computing*, January 1984.)

"A tax-preparation package can not only save you time, it can save you money."

TI's Mike McMahan Discusses Speech Technology

You had better watch what you mutter beneath your breath next time you're sitting in front of your computer. Because your computer just might have a few words to say in reply to you! An interview with Mike McMahan of Texas Instruments reveals the research and development being done today with speech technology. (*Personal Computing*, January 1984.)

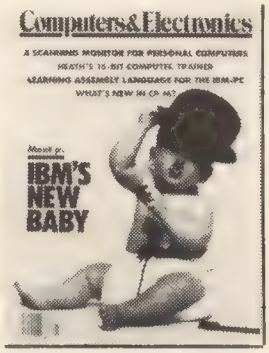
"In ten years you'll find that speech will be a very common mode of interfacing with a machine."



Getting Started In Personal Computing

If you haven't yet joined the computer revolution, this article is your invitation to a learning experience that will pave you a smooth path into home or business computing. Alexander W. Burawa leads you into the innards of a computer and tells you how it works. He covers the computer's input/output devices, its memories and its processor — all in layman's terms. It's a fun and easy-reading piece. (*Computers & Electronics*, January 1984.)

"In very basic terms, a computer is an information or data processor. It takes information fed into it from the outside world . . . and does whatever it has been programmed to do with the information."



Artificial Intelligence And The Future Classroom

"Take the findings from AI researchers, add a dose of imagination, and you'll be amazed at what the computerized classroom will look like in the year 2001."
In a well-written and informative article, John O. Green shares this futuristic vision of tomorrow's education with you. (*Classroom Computer Learning*, January 1984.)

"Will students fail to develop important skills if a computer is always available to do their research, answer their questions, and help them write and draw?"

Millions And The Microchip

"Thanks to modern technology, your computer deals with measurements on the scale of millions. There's a dot clock that ticks over eight million times a second and chips with components no larger than 50 millionths of a meter." Jim Gracely takes a fun and fascinating look at the scales of both time and size as they relate to the 6502 chip in this article. (*Commodore*, Issue 27.)

". . . keep in mind that the 6502 is not a very dense chip. In other words, 5,000 components on a chip is not that many. On the front edge of technology, with 256,000-bit memory chips, more than half a million components may be on one chip."

In The Chips

If you're just a user of computers, and by this I mean you have no computer background, you've probably caught yourself wondering about the so-called chip. The heart of the computer. How is it made? How does it work? Diane LeBold answers these and other questions in this article. She approaches this topic from a layman's viewpoint and presents the information in an excellent manner. A high-tech glossary accompanies the article. (*Commodore*, Issue 27.)

"Those of you who have opened your computer's case know it's crawling inside with what looks like a bunch of mechanical caterpillars. Maybe somebody told you, as somebody told me, that these are your computer's chips. Close, but not quite accurate."

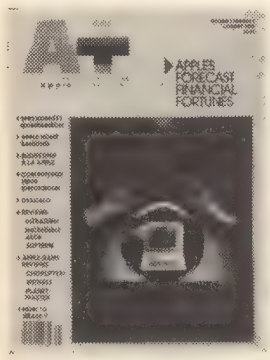
WINDOWS

Computer Crime Stoppers

The Apple has the facts . . . and now the police have an electronic dragnet. T.A. Arnold puts the handcuffs on how the Apple computer is being used in police departments across the nation. (*A+*, January 1984.)

". . . the Apple has become one of the best crime-prevention tools in the country . . . What were once just estimates on criminal activity have been replaced by facts."

"Computers may not be nuclear hand grenades, but they still have to stand the test of the patrolman on the graveyard shift."



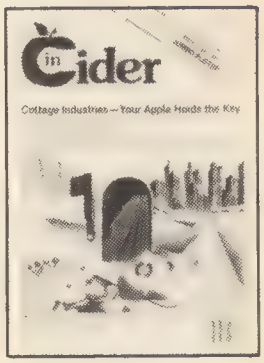
Down To The Sea In Chips

Shipbuilding is one of humanity's oldest crafts. And, until recently, it was a very inexact art. Michael Muskal takes you on a tour of today's shipbuilding industry in this article, or, to be more precise, he shows you how the Apple computer is helping to take the guesswork out of this ancient craft. The result? The designing of sleeker and fleeter boats. If you own a boat or are interested in ship design, this article is for you. (*A+*, January 1984.)

"There are enough broken boats in the Apple to fill the Bermuda Triangle, but, for the first time, engineers will really know what their boats can do before the first breeze blows the vessel across a five-foot chop."

"Ounces saved in construction will translate into more speed at sea. Efficiency is the watchword."

(We believe *Australia II* supported this last remark — Eds.)



Be A Computer Consultant

Tired of working for someone else? Want to be your own boss? Well, if you own a computer or have some computer background, Trisha McClelland outlines how you can become a financially-successful computer consultant. She tells you everything you need to know to get started . . . so now you don't have an excuse for not being self-employed any longer! (*inCider*, January 1984.)

"If you own an Apple, you own a gold mine."

"The actual designing, creating, and testing of the system can be done in the privacy of one's own home."

Bright Screens, Bright Hopes

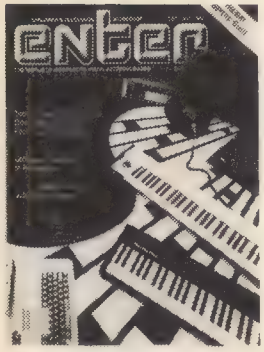
It's not often that you see the human side of personal computers, but Jill Steward does a wonderful job of reporting on how one man is recovering from a devastating stroke with the help of his family, friends, and an Apple computer. Along the way, Steward also touches base on how computers are making a significant change to patient rehabilitation. This is required reading for everyone . . . Thanks Ms. Steward. (*A+*, January 1984.)

"Many patients have returned to a level of functioning they would not have attained without a computer."

Boosting Word-Processing Productivity By 80%

"Faced with an increasing workload of word processing and a freeze on staff, this manager had to find a way to get productivity up. He laid the groundwork carefully, retrained workers thoroughly in use of a different keyboard — called Dvorak — and reaped payroll savings of $150,000 a year." Gary M. Kaplan shows how this manager did it by giving you a comparative analysis between the efficiencies of the Qwerty and Dvorak keyboards. (*List*, December 1983.)

"Using the standard typing keyboard, it was said, a full-time typist's fingers would travel 16-miles during the course of a day's work. But on the Dvorak, those fingers would roam a mere one mile."



Electronic LP's

What do Billy Joel, Styx, and Devo have in common? They've all used electronic synthesizers to help produce their music. David Fricke takes a quick, inside look at some of 1983's top practitioners of electro-rock, and how they use computers in their music. And, in a sidebar, Patricia Berry answers the question, What's a synthesizer? (*Enter*, January 1984.)

First Down And 10K To Go

Football is no longer a game of just brawn and muscles. The computer is making its appearance on the gridiron, and Norvell Brasch tells you how it's being used, as well as its implications for the future. A real thought-provoking article. (*Enter*, January 1984.)

"The future of the computer in football is wide open. The Broncos' Jim Clark suggests that someday an entire game plan will be computerized by the middle of a game week. Then, each player will get a chance to learn his part directly from the computer."

"Ultimately, some football executives worry, the team with the most advanced computer would win the Super Bowl every year. Or would it?"

Smell Lab

"'Here,' said Judith Wellington, 'smell this.' And she thrust into my face the extreme posterior of a guinea pig. Right before my very nose was the wriggling creature's pheromone-secreting organ. I reared back involuntarily — and, at the same time, sniffed. 'Er, uh, kind of cheesy,' I replied weakly. 'Yep, you're right, it is,' she said, obviously pleased with my foray into the science of olfactory perception."

Joel Davis takes you into the hallowed halls of the Monell Chemical Senses Center that does research on how our senses distinguish the smell and taste of a chemical molecule. Or, put more simply, how our nose and tongue transmit the data of wine and cheese. He supplies you with several recent and interesting scientific discoveries in this field, as well as discusses the real-world applications of such advances. You'll find the article captivating and tastefully dressed with pleasing humor. (*Omni*, January 1984.)

"There is evidence that a woman produces a specific kind of odor shortly before she ovulates. Further work on this could lead to an extremely reliable — and easy-to-use — method of rhythm birth control."

Video Worlds

Dragon's Lair is just the beginning. Phil Wiswell examines the new technological generation of video games: Interactive-video disks — games that you no longer play, but are actually a part of. He talks about how this system works, its features and capabilities, the growth of the video industry, society's response to these high-tech games, and what the future holds for it. Wiswell presents the information in a fine manner. It's captivating reading. (*Omni*, January 1984.)

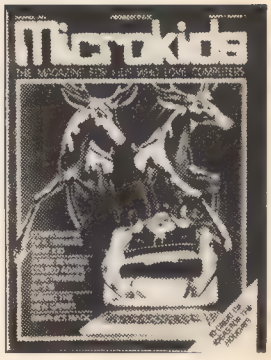
"Video games are about to undergo one of their biggest-ever technological leaps forward."

"Welcome to the awesome world of *M.A.C.H. III*, where the real and the fantastic are brought together in a video game so realistic that it should come with its own airsickness bag."

Computer Piracy Hollywood Style

WarGames. Just how close to the real McCoy was it? Joseph Gelmis takes an inside look at this movie and talks with its authors to dredge up the truth. The facts he reveals will surprise you. (*MicroKids*, December 1983.)

"The most troublesome aspect of the film is that much of what we see on-screen has already occurred in the real world . . . the Soviet Union has already dialed its way into the computers of a top-secret U.S. defense installation . . ."



Citation

Reviewed by Arthur Fink

Citation is a simple database manager specifically designed for keyword indexing. It took me only a few minutes to start using *Citation*, and within an hour I had successfully sampled almost all of its features. While *Citation* has some technical limitations, I found it a delight to use and very easy to learn.

I began by copying the *Citation* disk onto a working disk (the program is not copy protected), and started the program by typing "Citation." The main menu which appears below really describes the entire program:

Since I had not yet defined any *Citation* files, the program told me to use function 43 to initialize a new file. Then I began using "Update/Browse *Citation* Entries" to start entering book references. *Citation* accepts three input formats: (1) Periodical citations, (2) Books, and (3) Name/Address. For each of these you are allowed to give up to six keywords that you can use to retrieve the entry, and full bibliographic (or address) data. You can also enter up to ten lines of free text, which can include additional fields that can be output with special formatting. The first line of free text is intended as an item summary, and is printed out in the Keyword Index Report.

Citation allows only four reports, but these should cover most user requirements: (1) All items that are indexed under specified keywords (or a logical combination of keywords), (2) A listing of an entire *Citation* file, (3) A listing of all keywords, with an abbreviated listing of each item indexed under that keyword, (4) A simple listing of all keywords. You can send these reports to a printer or to a disk file, or you can examine the data directly at your terminal.

Citation is for users — not programmers. It lacks the elegance and complexity of *Datafax* (reviewed on page 57 of this issue), and it has more limitations on the number of keywords, the length of text, the formatting of printed reports, etc. It is much easier to use and to learn, however, and it appears to be complete for its intended purpose. I expect that most people using *Citation* for typical applications will find all the facilities they need to enter and retrieve all the information they can create.

Unlike *Datafax, Citation* runs under PC-DOS, and you can easily exchange data with other programs. Data from other systems being entered into *Citation* must, of course, have some codes added to identify the fields (author, title, date, etc.), but this should pose no special problem. You can create disk files that should be compatible with most mailmerge programs.

The documentation is exemplary. It describes each *Citation* function clearly, with a clear illustration of any menus involved and a complete description of all data fields required. Error messages are listed right after the function that might produce them, and are accompanied by clear instructions for the user.

I didn't get to test the error recovery procedures, but *Citation* does have functions to recreate its files if a system crash or power failure ruins an index file. Even these are described in terms that should be quite clear to a non-technical user.

Since *Citation* appears to be considerably less powerful than *Datafax*, I was surprised at my strong positive reaction to this product. After a close comparison of both packages, it is clear that *Citation* succeeds because it focused on a realistic application, while the authors of *Datafax* attempted to create a generalized tool that could fully satisfy nobody. I'm sure that there are applications for which *Datafax* is better suited, but if *Citation* meets your needs, I can strongly recommend it to you.

From Eagle Enterprises, 2375 Bush St., San Francisco, CA 94115. System Requirements: IBM PC with 96K and two-disk drives (or hard disk). Suggested retail price: $185.

```
                C I T A T I O N   M E N U
                -------------------------

DATA ENTRY AND BROWSE                   UTILITY
  11--Update/Browse Citation Entries      41--Recreate Citation File
                                          42--Recreate Citation Index
KEYWORD SEARCH                            43--Update Parameter File
  21--Multi-Keyword Selection             44--Load From External File
      Print/Display Results               45--Merge Citation Files

PRINT REPORTS                           OTHER
  31--Print Citation File                 90--Reset File ID
  32--Print/Display Keyword Index         99--Exit From Citation
  33--Print/Display Keyword List

ENTER FUNCTION CODE: <  >   FILE XX---xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

DB MASTER Version Four

Reviewed by Cary W. Bradley

The folks at Stoneware have chiseled out Version Four of *DB Master*, and it looks like a winner. Version Four takes advantage of the increased hardware capabilities of the IIe, and provides enhanced features not found in earlier versions. Whether you're looking for data base software or you already use *DB Master*, this product is worth a second look. This review addresses both situations; first, I'll look at *DB Master* Version Four as a product by itself, then I'll describe the improvements you'll find over Version Three.

System Overview

DB Master is best described as a filing system. It is suitable for maintaining nearly any body of data which you could store in a paper filing system, and features versatile reporting capabilities, as well. You can also lock this electronic filing cabinet, and password security provides protection of your data from unauthorized viewing or tampering. You can also assign a read-only password to allow certain people to view, but not change, your data.

From Stoneware, Inc., 50 Belvedere Street, San Rafael, CA 94901. System requirements: Apple II+ with 16K RAM card (total 64K), or Apple IIe; one to four disk drives (two recommended). Suggested retail price: $350.

DB Master stores information in "records." A single record consists of all the individual items of information pertaining to a file entry. For example, in a data base for inventory, a record would include such things as the product name, product number, quantity on hand, wholesale and retail prices, product description, supplier name, etc. Each of these items is called a "field."

You must designate one or more of the fields as the "primary key" for the data base. The primary key determines how a record is filed, and is used to locate information in the most efficient (fastest) manner. The primary key must be unique for each record in the file; it identifies the record. *DB Master* also allows the definition of "secondary keys," which allow searching in a slightly less efficient way, but one preferable to examining every record in order to locate data.

You begin to build your data base by defining the fields that make up a record. This is accomplished by designing a "form" for data entry, which appears on the screen when the time comes to actually enter the data. There is a position on the form for each field in the record. As you design the form, each field appears on the screen in the position you designate. A record can have more fields than will fit on a single screen; you can include up to nine pages (screens) in your form.

The form definition process in *DB Master* is easy to use, with complete prompts constantly on the screen. If you change your mind before you're finished, it's easy to rearrange the fields on the screen, change the order in which data will be entered, or even move a field to a different "page." You have complete flexibility to experiment and correct errors as you proceed.

For each field, you must specify its position on the screen, a label to identify it, and its type. In addition to numeric and character fields, *DB Master* includes specially formatted fields to handle dollars and cents, yes/no items, social security numbers, telephone numbers, and dates.

Numeric fields can be "small integer" (0-255), "large integer" (+/- 32767), floating point (+/- 999,999,999, to a

DB Master, *continued*

maximum of eleven places including the decimal point), or "computed," where the field is automatically generated on the basis of values entered for other fields. Computed fields use only a single arithmetic operation (+, -, * or /) performed on two fields or one field and a constant. Character fields may be up to 100 characters in length.

Although you can edit your form as you go along, once you have finished designing it (which determines the data base structure) you cannot change it unless you buy additional software (a "Utility Pak").

After you've designed the form, you are ready to begin data entry. During this procedure, the screens you designed appear, and you type in your data. In the simplest case, you fill in the fields one by one, as you specified in the setup sequence. But *DB Master* includes some nice help features, since things are seldom quite that simple.

You can define default values for any of the fields to eliminate retyping information common to many of the records in your data base. Defaults appear on the form during data entry, and you simply hit RETURN to accept them, or type other data if appropriate. You can set up permanent defaults while designing the form, you can override them or specify additional temporary defaults at any time. Or, you can use "last record default mode," where all fields are carried forward from one record to the next, and you need only change the fields that differ in the current record.

When you design your form, you specify the order in which *DB Master* will request entry for each of the fields. This can be overridden, as well. Each time you press RETURN (or down-arrow on the IIe), the cursor moves forward to the next field. Alternately, you can press ESC (or up-arrow) to go back to the previous field. You can also jump from page to page by using CTRL-G.

No matter where the cursor happens to be, you can add the record to the file by typing CTRL-A. Not only does this allow you to add records for which you don't yet have all the information, it also lets you jump from field to field to correct entry errors, and then add the record to the file at any time.

Finding And Editing Records

DB Master allows you to view and/or edit any record in the file. The first step is to specify which record(s) you wish to find. Screens similar to the data entry screens are used in searching, but with an important difference. Here, you enter 'search criteria,' and *DB Master* will find records which contain the values you specify in whatever fields you choose. You can specify a search for field values within a range by using 'search symbols.' For character fields, you can specify that *DB Master* find all records in which the field includes a certain sequence of characters. Or you can ask for statistics on a certain field, and get the count, sum, average and standard deviation for that field for all records that meet the search criteria.

DB Master features an 'or' search, in which up to ten separate sets of criteria may be specified, and records that meet any one or more of the sets will be located.

After a record has been found, you can edit it or delete it from the data base, replace part of the primary key and add it as a new record, just leave it alone and search for the next record that meets the criteria, or call off the search altogether.

Generating Reports

DB Master's flexible Report Generator easily produces reports that list or summarize you data. A report format consists of four separate specifications: a page format, a data format, a sort format and a select format. These determine how the report is laid out on the page, what fields are included in the report, what order the data appear in, and which records are used for the report. Each different report you design for your data base is identified by its Master Report Format, and any or all of the four elements which comprise it may be used in several Master Report Formats without having to redefine them. For example, the same data format might be appropriate for several different reports, even though the reports may sort and select data in different ways.

Reports may be shown on the screen as easily as on paper, although the forms must (for obvious reasons) be designed to be 39 or fewer columns wide in this case.

The Manual

The *DB Master* Version Four manual is as complete and comprehensive as the software itself. Glossy cardboard separators with tabs make it simple to open up to the exact section you need. Each of the sections includes a table of contents, and a there is a complete index at the back of the book.

Nearly half of the manual is occupied by tutorials, which guide you through the development and use of a sample data base. The tutorials are written for the user with absolutely no prior knowledge of computers or data bases. Inexperienced users will find this

helpful, but all of the detail can get in the way if you're not a neophyte.

The *DB Master* manual emphasizes the need to plan your work on paper before attempting to enter anything in the computer. Preprinted forms are included to aid you in designing the data base, screen layouts and report formats. Filled-in forms are provided for the sample data base used in the tutorials. A large poster depicting the paths through *DB Master's* facilities is also included.

Experienced *DB Master* users will appreciate the "Quick Guide" to Version Four features, which is separate from the manual. And when you return your user registration card, Stoneware will send you "File Design Guidelines," for which space is provided in the manual.

Lots of Disks

Five disks are included in the package. The program occupies two, and you receive two copies each of Program Disks One and Two. The other disk contains sample files. Here you'll find the data base for the tutorial, and some ready-to-use data bases (mail list, collection and home inventory).

Each data base requires two disks for storage; designated as the Data Diskette and the Utility Diskette. Data bases can extend to multiple disks, up to five to ten megabytes. For reports that require sorting, an additional disk is required to hold the sorted data.

With all these disks floating around, it's easy to see why Stoneware recommends that you use two disk drives. Even with two drives, there can be some swapping. The amount of swapping when using two drives is not great, although I found it annoying when I was asked to insert one of the program disks, only to be asked immediately to insert the *other* program disk. The first couple of times it happened, I thought I must have misread the screen and put in the wrong disk. But several very careful disk switches convinced me that I was not the problem.

You can back up data and utility disks with a normal disk copying utility, such as Apple's COPYA, but *DB Master's* own Reblocking facility is recommended. Reblocking packs your file to reclaim disk space that may have been wasted through editing or deleting records. More importantly, it also labels each disk volume so that *DB Master* can check to be sure you're using data and utility disks from the same version of your file.

Version Four Enhancements

Following are some of the new features of this latest release, as compared to Version Three:

- Version Four is compatible with Version Three and with Stoneware's "Utility Paks" #1 and #2 and "Stat Pak," all of which may be purchased separately. You will have to adhere to some restrictions, however, if you wish to create a file with Version Four and use it with a Version Three Program Disk. Version Four has two program disks.
- Version Four supports the additional capabilities of the IIe. Up- and down-arrow keys are available, as are lowercase letters. Version Four requires 64K RAM, so you must have a 16K RAM card to use it on a II+.

An on-screen file design tutorial is included, and form editing capabilities during form creation have been enhanced. More commands are available, and screen prompts have been modified to reflect this. A buffer which holds a deleted field has been added, allowing you to move the field to a different place in the form.

- Primary key fields are selected and permanent defaults are assigned after the form is designed in Version Four. Printer parameters are now specified during file creation (although they may be changed at any time).
- The maximum length of alphanumeric fields has been increased to 100 characters, and a field editor has been added so that you don't have to retype the entire field to make a change. An edited record may either replace the original record or be added to the file as a new record.
- The audit trail (printing records as entered) is now turned on and off with CTRL-P. A horizontal record print format has been added to eliminate the paper waste caused by Version Three's one-field-per-line format.

A number of improvements have been made to the Report Generator. A one line per record format and a mailing label format are available for quick report design. The report setup menu has been expanded. Sort disks may be re-used (to reprint the same report later). You can now exit from *DB Master* through the report generator without going back through the main menu.

Version Four can handle larger files than Version Three, and the program's performance has been improved. Screen displays, record searching and report printing are all significantly faster. You can jump directly to any page of your form, rather than moving only one page at a time, as in Version Three. Loading short forms takes less time. The "Reset # of Records" utility, previously available only in Utility Pak #1, has been added to *DB Master* File Maintenance, allowing you to recover damaged files without buying additional software.

Stoneware has worked hard to improve the user-friendliness of *DB Master*. Version Four includes more screen prompts and more informative error messages. The manual has been rewritten to make it more complete and easier to use.

Data entry, editing, retrieval and report generation are all wonderfully painless. For those in search of a filing system for the Apple, this product is well worth your consideration.

Summary

DB Master Version Four is an easy-to-use filing system adaptable to a broad range of applications. Tutorials provided on-screen and in the manual make it simple for new users to get started. Menus and prompting are clear and informative, and anything you can't figure out from what you see on the screen is easily found and clearly explained in the manual. Data entry, editing, retrieval and report generation are all wonderfully painless. For those in search of a filing system for the Apple, this product is well worth your consideration. Present *DB Master* users will welcome the Version Four enhancements, and should definitely take a look at the new features an upgrade would bring.

Database Manager

Reviewed by James V. Trunzo

Reviewing a utility such as a database is not the same as reviewing a new arcade game. While in most instances, unique features and/or concepts abound in entertainment software, the same cannot be said for utilities; therefore, the emphasis when examining a utility must be placed on how well the utility performs its given function rather than what's new and different about the package. It is that type of focus that you will find in this review on Mirage Concept's *Database Manager.*

A database, by definition, must be able to manipulate a mass of information quickly and easily; and while all databases do perform this function, you can only assess the "bottom line" value of the package by looking at:

- The capacity of the database;
- The ease with which you can construct forms and enter and retrieve data;
- The speed and flexibility with which the data can be manipulated.

Using the above criteria to form an evaluation, *Database Manager* has a very strong "bottom line."

Database Manager has an impressive capacity for information storage. You can create up to 65,535 records per file with a maximum record size of 2000 characters per record; it allows up to 200 different fields per record, with each field size capable of handling 250 characters; and finally, it allows a maximum form length of 2500 characters (roughly 60 screen lines or two and a half pages in length).

The breadth of this package allows for many possible uses. It isn't limited, because of size, to creating simple mailing lists or uncomplicated customer sorts, though you certainly may use it for those purposes.

The amount of material you can enter in *Database Manager* is impressive, to say the least; but such storage capacity would be for naught if the program did not allow for easy and creative use of its capacity. No problem here! *Database Manager* is extremely user-friendly from start to finish.

It is in the area of form creation that the power of this particular database begins to exhibit itself. You can set up the form in any manner that you wish as long as you stay within the space limitations previously discussed. Unlike some other databases, *Database Manager* places no other restrictive parameters on how you create your form.

Creating Forms

Like all parts of the *Database Manager* system, form creation is guided by menu-driven options. From the Main Menu, for example, you select option 6, CREATE NEW FORM, which puts another menu on the screen. From this menu you can select from options that allow you to underline for field length, signal the completion of a created form, or exit the menu without saving the form. The options on the CREATE NEW FORM menu are all selected by simply pressing one of the Commodore function keys and these, along with the regular Commodore editing keys, are all the tools necessary to create the form you wish.

Database Manager provides all the flexibility needed to create a form. I won't go into all the nuances of form development here. However, it is important to note that the program allows the user to do mathematical computations on any field, turning the database into a simple electronic spreedsheet. For example, if a baseball coach wished to create a database for his team, he could, by including computations on his fields, have the database automatically update and calculate all team statistics.

Once a form has been created and saved, all you need to do is fill out the form with the appropriate data. This task requires little more than filling in the blank spaces already created on the form. Aside from typing in the desired information, all the user must do is save each record created. Saving a record requires that the user select the correct option from the APPEND MENU (done by pressing F5) each time that a record is ready to be saved. That's all there is to it! Finally, it is important to point out that editing, updating or deleting records created on *Database Manager* is no more difficult to do than it is to enter.

Once all of the data has been entered into the database, you must be able to manipulate it. Again, *Database Manager* excels in this area. It allows simple or multiple sorts from among the fields created on a given form. You can sort a file either alphabetically or numerically; it may be sorted from an indexed or non-indexed file (though many of the sort options, especially multiple sorts, cannot be done unless a file is indexed); it may be sorted in part or in its entirety. Furthermore, when employing multiple sorts, you are not limited to a specific number of fields per multiple sort.

Sort time varies, as with any database, in accordance with the type of sort being conducted and the number of items being sorted. As one would expect, *Database Manager* sorts much faster on fields already indexed than on those that have not been indexed. In general, it is safe to say that *Database Manager* features speedy retrival relative to the type of sort and the speed of the drive being used.

Other Features

Database Manager contains many other niceties. It allows for the use of conditional statements when doing record reviews, provides mail list and file merge capabilities, has automatic scroll when creating lengthy forms, displays file headers that facilitate working with the program as a whole, has a directory command that shows all the files on a particular disk, and allows you to "pack" a file once information has been deleted in order to take maximum advantage of disk storage, to name just a few of the major advantages of the database program. *Database Manager* also claims compatibility with most popular printers being sold today and allows for four different types of print format, including list, form, report or mailing-label print formats.

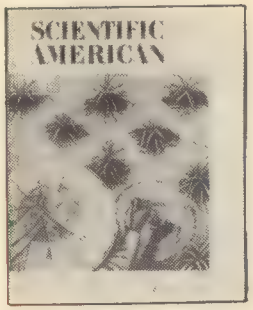
Database Manager comes in an attractive three-ringed binder that is both durable and utilitarian. It contains the program disk and a thorough, well-documented user's manual.

From Mirage Concepts, Inc., 2519 W. Shaw#106, Fresno, CA 93711. System requirements: Commodore 64 with 64K and a 1541 disk drive or 2031 disk drive with interface. Optional requirements: Commodore 1525 or 1526 printer or any parallel printer with appropriate interface. Suggested retail price: $140.

SCIENTIFIC AMERICAN

7-3

January 1984, Vol. 250, No. 1



Scientific American is published by Scientific American, Inc., 415 Madison Avenue, New York, NY 10017.

SCIENCE DIGEST

7-2

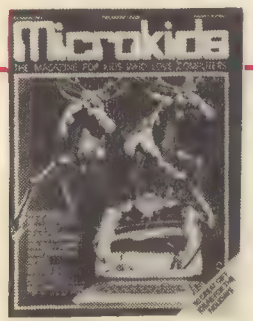
January 1984, Volume 92, No.1

Science Digest is published by The Hearst Corporation, 224 W. 57th Street, New York, NY 10019.

MICROKIDS

7-1

Nov/Dec 1983, Vol.1, No.1

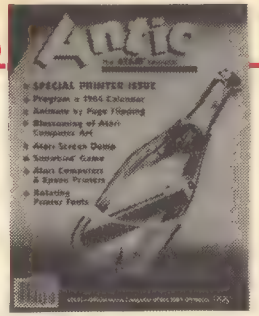


Microkids Magazine is published by Microkids, Inc., 133 Fifth Avenue, New York, NY 10003.

ANTIC

7-6

January 1984, Volume 2, Number 10

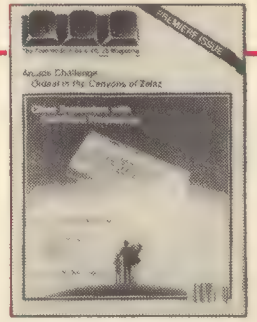


Antic, The Atari Resource, is published by ANTIC Publishing, 524 Second Street, San Fancisco, CA 94107.

RUN

7-5

January 1984, Vol. 1, No. 1



RUN is published by Wayne Green, Inc., 80 Pine Street, Peterborough, NH 03458.

HOT COCO

7-4

January 1984

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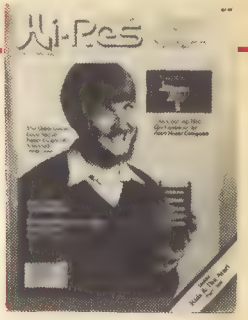
HI-RES MAGAZINE

7-9

January 1984, Vol. 1 No. 2

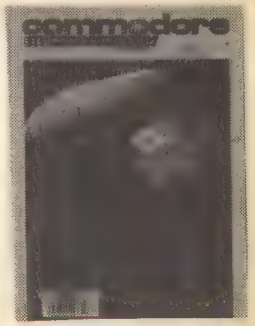


Hi-Res Magazine is published by Compupress, Inc., 933 Lee Road, Suite 325, Orlando, FL 32810.

COMMODORE

7-8

Volume 4, Number 6, Issue 27



Commodore: The Microcomputer Magazine is published by the Computer Systems Division, Commodore Business Machines, Inc., 1200 Wilson Drive, West Chester, PA 19380.

COLOR COMPUTER

7-7

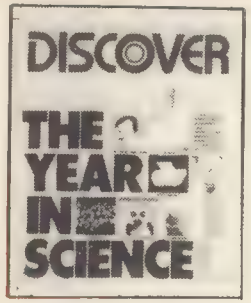
Vol. 1, No. 11, January 1984

The Color Computer Magazine is published by New England Publications, Inc., Highland Mill, Camden, ME 04843.

DISCOVER

6-3

January 1984, Volume 5, Number 1

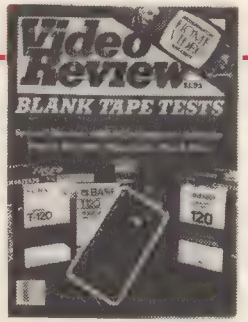


Discover is published by Time, Inc., 3435 Wilshire Blvd., Los Angeles, CA 90010.

VIDEO REVIEW

6-2

January 1984



VIDEO REVIEW (continued)

6-1

January 1984

Video Review is published monthly by Viare Publishing, 350 East 81st Street, New York, NY 10028.

OMNI

6-6

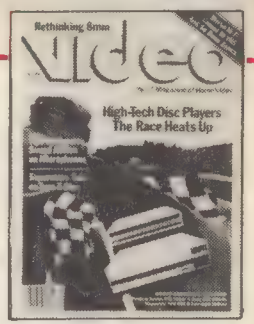
January 1984, Vol.6, No.4

Omni is published by Omni Publications International Ltd., 1965 Broadway, New York, NY 10023.

VIDEO

6-9

January 1984, Vol. VII, No. 10



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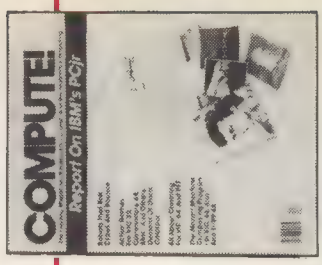
Electronic Fun with Computers and Games is published by Fun & Games Publishing, Inc., 350 East 81st Street, New York, NY 10028.

5-2

SOFTWARE SUPERMARKET
January 1984, Volume 1 Number 1

Software Supermarket is published by Amos Press, Inc., 911 Vandemark Rd., Sidney, OH 45365.

5-3



COMPUTE!
January 1984 Vol.6, No.1

COMPUTE! Publications, Inc., P.O. Box 5406, Greensboro, NC 27403

5-4

ENTER
Dec. 1983/Jan. 1984, Vol.I, No.3

Enter is a publication of the Children's Television Workshop, 1 Lincoln Plaza, New York, NY 10023.

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January 1984, Volume 9, Number 1

BYTE, (continued)

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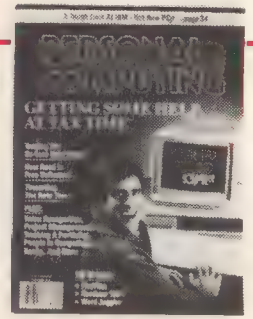
PERSONAL COMPUTING

4-9

January 1984, Volume 8 Number 1



Personal Computing is published by Hayden Publishing Company, Inc., 10 Mulholland Drive, Hasbrouck Heights, NJ 07604.

INTERFACE AGE

4-4

January 1984, Vol 9, Issue 1

INTERFACE AGE, (continued)

4-5

January 1984, Vol 9, Issue 1

Interface Age is published by McPheters, Wolfe, & Jones, 16704 Marquardt Ave., Cerritos, CA 90701.

FAMILY COMPUTING

4-6

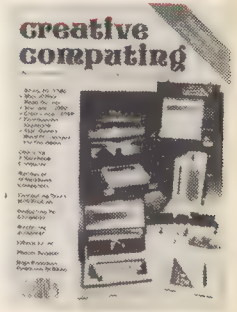
January 1984, Volume 2, Number 1

Family Computing, 730 Broadway, New York, NY 10003.

CREATIVE COMPUTING

4-1

January 1984, Volume 10, Number 1



CREATIVE COMPUTING, (continued)

4-2

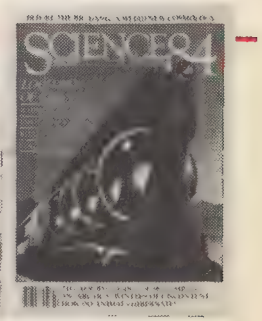
January 1984, Volume 10, Number 1

Creative Computing is published by Ahl Computing, Inc., a subsidiary of Ziff-Davis Publishing Company, P. O. Box 789-M, Morristown, NJ 07960.

SCIENCE 84

4-3

January/February 1984, Vol.5, No.1



Science 84 is published by the American Association for the Advancement of Science, 1515 Massachusetts Ave., N.W., Washington, D.C. 20005.

A+

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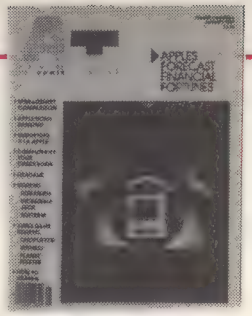
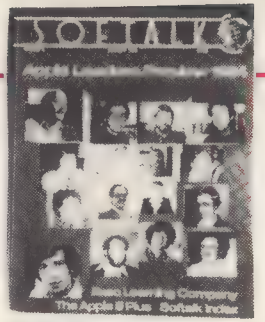


A+ Editorial and Business Office: One Park Avenue, New York, NY 10016.

SOFTALK, APPLE

January 1984



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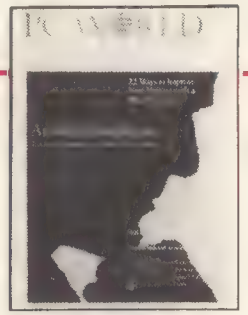
PC

January 1984, Volume 3, Number 1

PC WORLD

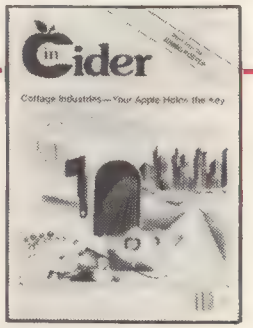
January 1984



PC World is published by PC World Communications, Inc., 555 De Haro St., San Francisco, CA 94107.

INCIDER

January 1984, Vol. 2, No. 1



inCider is published by Wayne Green, Inc., 80 Pine St., Peterborough, NH 03458.

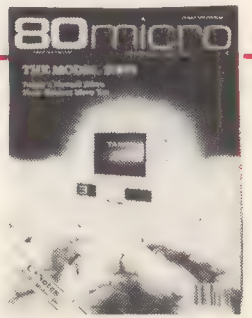
PC, (continued)

January 1984, Volume 3, Number 1

PC is published by Ziff-Davis Publishing Co., One Park Avenue, New York, NY 10016.

80 MICRO

January 1984



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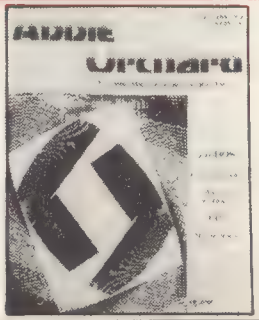
APPLE ORCHARD

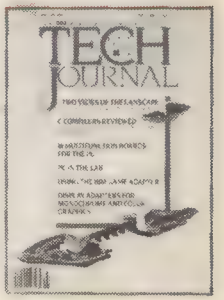
January 1984, Volume 5 Number 1



Apple Orchard is published for the International Apple Core by Orchard Potentials, Inc.

PC TECH JOURNAL

January 1984, Volume 1, Number 4

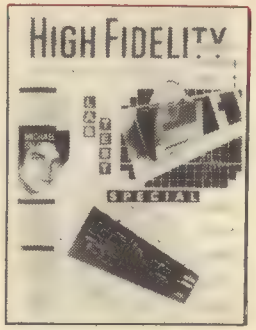


PC Tech Journal, The World Trade Center, Suite 2II, Baltimore, MD 21202.

HIGH FIDELITY

8-3

January 1984, Volume 34, Number 1



HIGH FIDELITY, (continued)

8-2

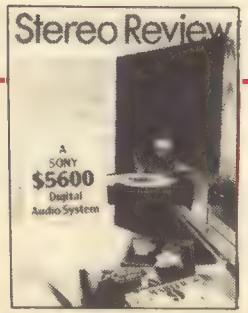
January 1984, Volume 34, Number 1

High Fidelity is published by ABC Leisure Magazine, Inc., a division of ABC Publishing, Inc., and a subsidiary of American Broadcasting Companies, Inc., 825 7th Avenue, New York, NY 10019.

STEREO REVIEW

8-1

January 1984, Vol. 49, No. 1



Stereo Review is published by Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016.

CONSUMER REPORTS

8-6

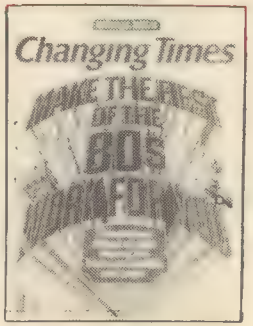
January 1984, Volume 49, No. 1

Consumer Report is published by Consumer Union of United States, Inc., 256 Washington St., Mount Vernon, NY 10553.

CHANGING TIMES, THE KIPLINGER MAGAZINE

8-5

January 1984, Vol. 38, No. 1

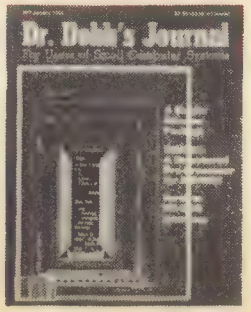


Changing Times, The Kiplinger Magazine is published by The Kiplinger Washington Editors, Inc., Editors Park, MD 20782.

DR. DOBB'S JOURNAL

8-4

January 1984, Volume 9, Issue 1

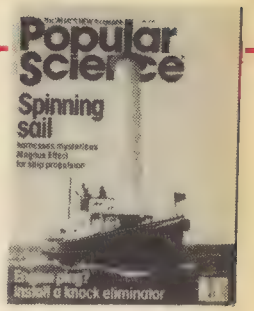


Dr. Dobb's Journal is published by People's Computer Company, P.O. Box E, Menlo Park, CA 94026.

POPULAR SCIENCE

8-9

January 1984, Vol. 224, No. 1



POPULAR SCIENCE, (continued)

8-8

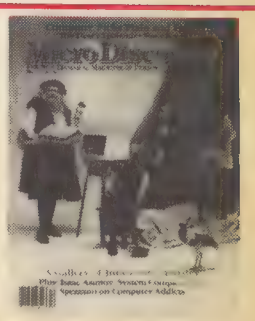
January 1984, Vol.224, No.1

Popular Science is published by Times Mirror Magazines, Inc., c/o Communications Dept., Los Angeles Times, Times Mirror Square, Los Angeles, CA 90053.

MICRO DISCOVERY

8-7

Dec.'83-Jan.'84, Vol.1, No.6



Micro Discovery is published by Micro Digest, Inc., 5152 Katella Ave., Suite 102, Los Alamitos, CA 90720.

LOTUS 123

Reviewed by Arthur Fink

"How can you review *Lotus 123*?" a friend asked me. "It's already a best seller and a classic." There certainly is a mystique about this product, which is usually mentioned in the same breath as the Apple® Lisa as an example of the new wave of computer software.

I'd heard that *123* was both a spreadsheet program and a database manager, with high quality graphic output available almost as easily as text. It is. I'd heard that its spreadsheet facility was comprehensive, fast and capable of handling large quantities of data. It does. And I'd heard that *123* is so easy to use that non-programmers can quickly become proficient. I'm not so sure about this one.

Lotus 123 is, first of all, a spreadsheet program. All the other functions are built on this base. In working with *123*, you look through a window at an array of up to 256 columns and 2048 rows. In most spreadsheets, these cells typically contain some sort of financial data, or other numeric information. With *Lotus 123*, you could just as easily enter a mailing list, a bibliography or any other textual data that you might want to sort, retrieve and print out.

Like any other spreadsheet, 123 allows you to define groups of cells as ranges, and to enter formulas specifying how to compute dynamically the value of a cell. These formulas can then be copied to other cells. For example, you might define a column as "1983 Budget," with rows for such categories as salaries, rent, telephone, etc. You could then define a cell as the total of this column, and copy that definition to total other columns that might be used, say, for monthly actual expenses. While you usually want formulas to use relative addresses (e.g. add the column of figures over a cell), there are times when you require an absolute cell location (e.g. the particular cell where you enter the interest rate).

What makes *123* different as a spreadsheet is the convenient way of entering the information, and the range of functions available for defining formulas. To enter a *123* command, you just type a slash (/); *123* comes back with a list of commands and a cursor. You simply move the cursor to the command you want and hit "Enter." For commands that require more information, *123* displays another menu with the same procedure. If moving a cursor around a menu doesn't suit your taste, you can type the first letter of the desired command. I was skeptical about working with the menu arrangement, and yet impressed with how quick and comfortable it really is.

A powerful, interactive help facility lets you display the meaning of each choice and explore further for all sorts of detailed information. It's easy to get to any level of "Help" that you want. The fact that most of the documentation is so available on-line helped make *123* a delight to use.

123 offers a wide range of functions, including horizontal and vertical table lookup; date conversions involving days or months; statistical averages, deviations and variances; and such mathematical functions as logarithms base and base 10, exponentials, regular and arc-trig functions, and random numbers.

Useful Features

The list of financial functions is particularly impressive: internal rate of return, net present value, future value, present value, and payment. You can define the value of any cell to be "NA" (not available), and this definition ripples into all your calculations involving that cell. The function ISNA lets you check for this value, and you can define another value, "ERR" (error), that also propagates through your formulas.

In addition to all these useful features, which are most useful for numerical information, *123* offers some powerful features for processing text. If you regard each column as a field and each row as a record, then a *123* spreadsheet becomes a simple database. The two-level sorting capability is particularly helpful here. *123* also offers special commands to query a database and to extract or delete selected records based on simple or complex criteria.

In working with *123*, I was constantly surprised to discover additional features. For example, the command to read data into a spreadsheet from another file ignores high-order bits. This lets you read in text files created with *Wordstar* without an extra conversion step. Another command is provided to arrange text within margin settings, thus accomplishing simple word processing functions.

The data-table commands are particularly useful. These allow you to construct a one- or two-dimensional table (array), in which each element displays the result of a formula based on the one or two parameters shown on the axes of

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From Lotus Development Corp., 161 First St., Cambridge, MA 02142. System Requirements: IBM PC, 192K RAM, Two-disk Drives, Color Graphics Board, or dot- matrix printer for graphics. Suggested Price: $495.

Lotus 123, *continued*

the table. I built a simple model of finances for a school, involving such variables as average faculty salary, enrollment, tuition per child, supply cost per child, etc. I then used the data-table command to compute a table showing the bottom line figure (surplus or loss), based on a range of tuitions and a range of enrollment figures. Then I changed the faculty salary figure and pushed a single key to have the table computed again.

Having set up such a procedure, you can define the series of commands as a "keyboard macro," so that next time, you only need to enter a one-character name to go through all the steps. I wish that *123* allowed better macro names (*Multiplan* does), but you can't have everything.

Unfortunately, the *123* graph functions require the IBM color graphics card (or the Hercules card) for monitor display, or a dot-matrix printer capable of doing graphics for printed output. I have the IBM monochrome monitor and a letter-quality printer, so I couldn't work with these facilities at home, but I did managed a quick look on a friend's computer. My impression was that the graphing commands are every bit as powerful and well-designed as the rest of *123*.

I had absolutely no technical problems using *123*. It's a tightly written program that does an excellent job trapping error conditions and keeping you out of trouble. The documentation describing installation, special printer setup, etc. is excellent, but you probably won't need it. I was able to use *123* with all its default installation parameters, and so only had to enter a single command to copy the DOS onto my *123* system disks.

When I first got *123* from the ***SoftSide*** editors, I tried to leave it on my bookshelf until I finished some other projects. Naturally, my curiosity got the better of me, and within a day I wanted to try some simple applications. My first attempt to use *123* without reading any documentation was frustrating. The power of *123* comes at some cost in program complexity, and you do need to learn some basics to get started. However, I was again pleasantly surprised to find that *123* comes with a tutorial disk that walks you through all the fundamentals. It's one of the best computer-assisted instruction programs I've ever used, and one of the most lighthearted.

Having completed the tutorial, you're on your own. While the documentation is comprehensive and extremely well indexed, I found it hard to use as a reference tool. It's written as both a reference document and as a tutorial, and I often felt that I wanted either one or the other. Also, many of the illustrations are unclear and not very helpful. Some of my reactions may have been to the cramped page layouts and other graphic features.

I'm hesitant to offer my reactions to the documentation as objective criticism. As I examine the *123* manual now, it looks like a model of clarity and organization. Significant points are highlighted with a star, and an icon of a hand cautions you about commands that could cause loss of data. Tabs and printed margin keys help you find the right section, and three indexes let you locate any passage you need. However, there are very few extended examples showing how all the parts of *123* work together in typical applications.

The many features that make *123* so powerful also make it a lot to learn. I tend to drive myself to master a package before I feel comfortable with it, and I've had to learn to ignore much of *123* while I'm working confidently and comfortably with the parts I need. But I've been impressed with every aspect of *123* that I've encountered, and would strongly recommend it to anybody who needs something more than just the mos basic spreadsheet.

CROSS REFERENCES

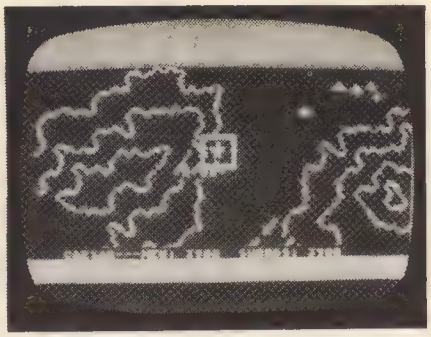
Edited by S. F. Tomajczyk

Software, software. Who can give you an honest and unbiased opinion of its good and bad points? Everyone seems to have their own views, especially the software critics. There's no standardization between them today on the specific elements that need to be included with each and every review. So what happens is that Joe Blow says wonderful things about one feature of the program while ignoring some of its pitfalls and John Q. Public raves about another feature while cutting down Joe Blow's comments just because John doesn't have a specific need for that particular aspect of the program. The result? You know it . . . Confusion!

So again we ask, who can give you an unbiased and trustworthy opinion of the pros and cons of a software program? Well, to avoid the conflicting comments of your friends, consultants, and magazine reviewers, consult *Cross Refernces*. Premiering this month, this section compiles the views and comments of software reviewers from over 50 computer magazines. We've searched every corner of every page to find the information that you should know about before buying or using that particular program. This includes information such as computer compatibility, program features and capabilities, pricing, program pitfalls, manufacturer's address and more. And, for your ease (and to be unbiased ourselves), each software program is cross-referenced with the magazine sources from which we pooled our information. This will point you to further research, if you so desire.

This month we're enticing you with 30 software reviews. The editors have carefully selected programs that will appeal to just about everyone; everything from *Legionnaire*, a war game, to *Easy Writer II*, a word processor, to *Lotus 1,2,3*, an integrated software package. So rather than hoof it around town to get frustrating answers . . . why not sit back, kick up your feet, and get an unbiased look at software in *Cross References*. If nothing else, it'll help you make the right decision. And isn't that what it's all about?

Legionnaire



You're Caesar marching through Gaul, and subduing barbarian tribes along the way with your superior fighting troops. Although always outnumbered, you must marshal, deploy and engage your forces cunningly to avoid defeat.

Legionnaire is a complex war game played on a scrolling landscape that is hilly and forested, with each aspect having consequences for the play. The playing board measures two screens wide by four screens high. This means that you can only see one-eighth of the map at a time. It also means that you can be the victim of a surprise attack if you're not too careful.

You give orders to your legions via the joystick, ordering where and when to move. A legion can accept up to eight commands at any given time, which it then executes while you turn your attention elsewhere.

A typical move might involve five legions each executing a stack of orders (i.e. moving simultaneously on the screen) while the barbarian tribes attack you with twice as many units from various directions (and sometimes from out of sight). Both your legions and the tribes have cavalry and infantry.

Legionnaire mentally simulates what it is like to command a real battle. Several things are going on at once, and you can't observe all of them. If you narrow your focus on the battlefield, the coordination of attack or defense break down. But, on the other hand, if your legions obey orders and fight valiantly, you can end up winning an unlikely victory.

As you get better at playing, you can choose tougher opponents and more legions for your army. The most difficult level pits ten of your legions against ten Helvetti and ten Hun units of both cavalry and infantry. Talk about a battle!

Legionnaire is not easy to play. You'll have to carefully read the instructions, spend some time learning a new joystick routine, and if you want to conquer, you must learn the differential characteristics of the various legions and their barbarian enemies.

***Legionnaire* runs on the Atari 400/800 with a minimum of 16K RAM, and requires either a disk drive or cassette player as well as a joystick and 410 recorder. *Legionnaire* costs $35 for the cassette version and $40 for the disk version (available for both Atari 400/800 and the Apple II, II Plus, and IIe). For further information, contact Avalon Hill Microcomputer Games Inc., 4517 Harford Road, Baltimore, MD 21214, 301-254-5300.**

Other References:

Compute!, July 1983, p. 128.

Creative Computing, Dec. 1983, p. 132

InfoWorld Report Card, Dec. 1, 1983, p. 98.

VisiWord

There are alot of Visi jokes going around the industry today, but *VisiWord* isn't one of them. *VisiWord* is a highly-structured, menu-driven word-processing program for the IBM PC. All of its editing options are displayed on a menu line at the bottom of your screen.

You simply select an option by typing the first letter of its name or by using the arrow keys to move the option you want and then pressing the Return key. Editing options include: delete, copy, move, find or replace text, format, headers and footers, ghost hyphen, underline, subscript and window features.

Other menu options let you manage disk and printer operations. There's also a Help screen that defines functions and use of special keys. VisiWord uses nine of the 10 function keys on the IBM: decimal tab, repeat command, underline, indent, delete, undelete, center text, new page and delete to end of line. *VisiWord* has printer drivers for more than a dozen specific printers. It's features rival dedicated word processors in terms of completeness.

***VisiWord* operates on the IBM PC under PC-DOS or MS-DOS 1.1 or 2.0. It requires 192K RAM. VisiWord is priced at $375 from VisiCorp, 2895 Zanker Road, San Jose, CA 95134, 408-946-9000.**

Other References:

InfoWorld Report Card, December 1, 1983, p. 17.

PC World, 1983/84 Annual Software Review, p. 154.

Softalk for the IBM, Oct. 1983, p. 61.

T/Maker III

The *T/Maker III* integrates a text editor, word processor, data manager and spreadsheet program into one complete and operational package for computer systems running under CP/M. It's great for those of you who use a computer to perform everyday tasks, but who don't want to be bothered with loading a different program for every different operation.

Regardless of which operation you want to use, you usually enter and manipulate all your data via the text editor. This editor not only has the typical features found in most other editors, but also those of most sophisticated word processors. These include, for example, cursor movement, screen scrolling (vertical and horizontal), moving text, search, replace function and much more.

The editor also has a macro feature that lets you predefine up to 150 commonly used keystrokes as one simple key sequence. This helps you to save time when you have to use a particular, complex string of characters over and over again.

T/Maker's word processor includes such options as page headers, text centering, right and left justification, and automatic footnote insertion. With it, you can also move around the window in several ways which is useful when you're using *T/Maker* as a spreadsheet program.

And speaking of such, *T/Maker's* spreadsheet function is as powerful as VisiCalc. You can use it not only to perform normal mathematical operations, but to apply transcendental functions as well. This includes sine and logarithm, max/min values, percentages, growth rates, and many others.

One other feature of *T/Maker,* and a powerful one at that, is its list processor. You can use this feature to manipulate any type of data list. The list can be a collection of names, a column of numbers, or anything else you can think of. The list processor can perform such functions as putting the list elements in either ascending or descending order (numerically or alphabetically).

T/Maker's diverse and powerful editing and formatting capabilities let you create printouts for reports, contracts and other documents. It also allows you to create various types of bar graphs from the data you're working with. This can be displayed either on screen or printed out.

***T/Maker* is designed to be simple to use. All commands are in English, and all user-induced errors are trapped within the program. In other words, it's almost impossible to get *T/Maker* to "bomb." The program runs on any CP/M system operating on CP/M 2.2. It costs $275 from T/Maker Company, 2115 Landings Drive, Mountain View, CA 94043, 415-962-0195.**

Other References:

InfoWorld Report Card, December 1, 1983, p. 91.

PC World, 1983/1984 Annual Software Review, p. 455.

Peelings II, Vol. 4 No. 7, 1983, p. 56.

CP/M Plus

CP/M Plus (actually CP/M version 3.0) is a major update of the most widely used microcomputer operating system. The differences between *CP/M Plus* and its predecessor (CP/M 2.2) are fairly substantial. The enhancements improve performance, provide more functions, and make it easier for you to install and integrate *CP/M Plus* on your hardware.

This operating system can be configured for banked or nonbanked memory. The banked version gives you enhanced line editing, password protection for your files and disks, extended error handling, and faster execution via the use of disk buffering. Both versions, however, let you execute more than one command per input line, time and date stamping of disk files, console and printer I/O redirection, and conditional execution of Submit file commands.

CP/M Plus supports most of the CP/M 2.2 commands, and most of the internal and transient commands either have been replaced or enhanced. Several new commands make an appearance with this new DOS, including a Date command to set and display the time and date; Get and Put commands to limit I/O redirection; Set command to control passwords, time stamping, and file attributes; SetDef command to modify the system disk and file-type search; and many others.

The most radical difference between *CP/M Plus* and its predecessor is its internal enhancements. It still has BDOS, BIOS, and CCP but that's where the similarities end. First of all, the CCP and the system itself are now contained in stand-alone files; the BIOS is modular, which simplifies BIOS development and debugging; and the BDOS now performs several functions previously delegated to the BIOS. Application programmers will be happy to hear that there are 28 new BDOS calls.

CP/M Plus is no easier to use than its predecessor. If anything, the command syntax and structures are a bit more complicated. If you're a first-time user of CP/M, this could pose a problem for you. The new Help command, though, is a significant step toward overcoming any problems you might have.

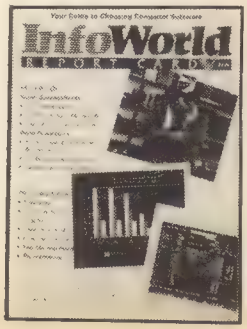
The program's error handling is much better than that of CP/M 2.2. The diagnostics are more comprehensive and understandable. The only problem with this package lies with its support from the manufacturer. Don't plan on getting adequate support after you buy the program; it's almost impossible to contact the technical support staff on the phone. And even if you're lucky and do get through to them, the answers you'll get aren't helpful enough.

***CP/M Plus* runs on any 8080-, 8085-, or Z80-based system, as long as it has 32K RAM, at least one-disk drive, and a console device. It costs $350 from Digital Research Inc., P.O. Box 579, Pacific Grove, CA 93950, 408-649-5500.**

Other References:

inCider, February 1983, p. 24.

InfoWorld Report Card, December 1, 1983, p. 120.

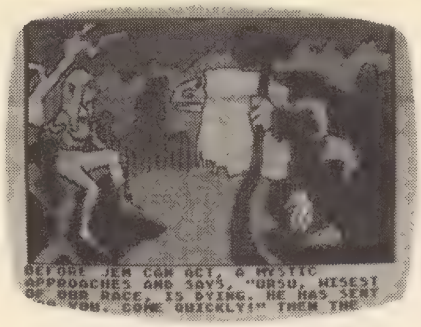


Dark Crystal

This graphic adventure game is fashioned after Jim Henson's movie of the same name. You must lead Jen, the last surviving member of the Gelfing race, through mountains, swamps and forests to find the castle that holds the shards of the crystal broken centuries ago in a spiritual battle between good and evil.

Finding the castle and it's treasure is no laughing matter. You'll have to discover magical potions, collect clues and escape from hostile enemies in order to succeed. You should anticipate several playing hours to conclude *Dark Crystal*, since it'll take you awhile to figure out how to get past certain barriers, or how to find your way out of seemingly endless mazes.

Dark Crystal uses two-word commands, which can be annoying at times when the computer doesn't acknowledge what you want it to do. As for the graphics, they're superb. They were originally drawn by Henson's artists and



then transferred to computer by Sierra On-Line's graphic artists.

***Dark Crystal* runs on Atari® ($37.95) and Apple® ($39.95) and is available from Sierra On-Line Inc., Sierra On-Line Building, Coarsegold, CA 93614, 209-683-6858.**

Other References:

Analog Computing, Sept./November 1983, p. 65.

Creative Computing, March 1983, p. 168.

inCider, December 1983, p. 198.

Personal Software, Dec. 1983, p. 54.

Peelings II, Vol. 4, No. 8, p. 22.

Bank Street Writer

Within fifteen minutes of picking up this program, you can be producing professional-looking letters. In fact, you don't really need to read the manual (of course, you always should anyway), because all the commands are listed at the top of your screen, and the prompts quickly guide you through the program.

Once you've entered your text, you can go to the Edit mode by simply hitting the escape key. Here, you can make spelling corrections; move words, lines or blocks of text; and insert new text wherever you want without erasing your old text. And once you've edited the text, the program will instruct you on how to print the document.

You have two choices with the print quality: Print-Draft and Print-Final. The first produces a triple-spaced 38-character-line copy for proofreading purposes, and the second generates the formatted copy. One problem with *Bank Street Writer* is that you can only move fifteen lines of text at any given time. So if you want to move or delete more than fifteen lines, you'll have to repeat the command sequence several times as necessary.

***Bank Street Writer* runs on the Apple II, II Plus, and IIe but requires that you have 48K RAM and Applesoft® . It will also run on the Atari 400, 800, and 1200; the Commodore 64. It costs $69.95 from Bonderbund Software, 1938 Fourth St., San Rafael, CA 94901.**

Other References:

Analog Computing, July/August 1983, p. 125.

Creative Computing, June 1983, p. 33.

Family Computing, January 1984, p. 134 & 140.

inCider, May 1983, p. 126.

InfoWorld Report Card, December 1, 1983, p. 7.

Micro, October 1983, p. 104.

Peelings II, Vol. 4 No. 3, 1983, p. 41.

Personal Computing, May 1983, p. 184.

Personal Software, Dec. 1983, p. 95.

SoftSide, Issue 42, p. 71 and p. 41.

The Creator

Ever wanted a specific program to meet your needs, but just couldn't find anything quite like it on the market? Well, now you can tailor-design your own programs without having to learn a programming language. *The Creator* is a BASIC program generator that operates as an interpreter. It asks you a series of questions about the design of your program and translates your inputs into BASIC code. Once it has been generated, you can list it, modify it, or merge it with other programs. Not bad, eh?

There are two ways you can use this program. The first is to create individual subroutines from the sixteen different available modules and then merge them together to form a program, merge them into an existing BASIC program, or generate a library of subroutines. The second method is to create an entire program at one time.

The sixteen subroutines available to you include title pages, instructions, a list of options available for a given program, simple word processors, print routines, sorts, searches, output routines, sound routines, and much more. These functions can all be combined into complete packages. However, you must keep the line numbers of your BASIC programs different when separate subroutines are merged, and they must be in a logical order of execution.

Compared to other programs, the *Creator* is very easy to use. And while the BASIC programs you create might not perform quickly, your ability to modify the program is an option that you rarely have.

***The Creator* runs on the Apple II series under DOS 3.3, and requires 48K RAM, two-disk drives, and a printer. It costs $250 from Software Technology for Computers, 430 A Main St., Watertown, MA 02172, 617-244-2590.**

Other References:

A+ Magazine, Dec. 1983, p. 147.

Softalk for the IBM, Nov. 1983, p. 134.

RobotWar

Learning to program is painless with *RobotWar*. In this game, in which your robots face-off to do battle with opponents in the ring, you'll have to program their actions and movements in order to survive. Creating a superior robot will require that you learn to program as well as exercise your creativity and ingenuity as well.

The *RobotWar* programming language resembles the commands found in Basic. You'll see plenty of GOSUB's, ENDSUB's and IF's. The structure of this language resembles Pascal, which means that you'll also learn how to write well-organized, well-documented and well-structured programs.

To help introduce you to the language, a manual explains the use of each command, and provides sample program routines for each of the primary functions that your robot may perform.

The concepts that you learn while programming your robots to survive are an excellent, and painless introduction to the art of computer programming.

***RobotWar* runs on the Apple II Plus and IIe. It costs $39.95 from Muse Software, 347 North Charles St., Baltimore, MD 21201, 301-659-7212.**

Other References:

Creative Computing, 1982 Software Buyer's Guide, p. 120.

Personal Software, Dec. 1983, p. 123.

MIT Logo

Logo is an interactive language that has an expandable volcabulary, unlike other languages such as BASIC. You create Logo programs by combining simple commands (primitives) into groups (procedures). You then use these procedures as steps in creating other procedures to whatever level of complexity that you desire. *Logo* is a language that is well-suited to help children learn about computers and how they can be programmed.

The package contains four disks: the Logo program, a backup disk, a utility disk and "Alice in Logoland." The latter is a computer-assisted instruction course consisting of 21 units of instruction on how to use Logo procedures. It's based on *Alice's Adventures in Wonderland.*

The utility disk contains several precreated shapes (created by Krell Software) for your initial use until you become proficient enough to create your own shapes. *MIT Logo* also offers a collection of useful procedures, including a music generator and an assembler program that lets you incorporate your own machine-language programs into Logo.

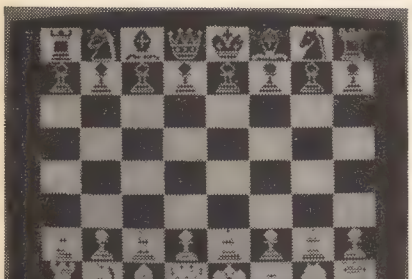
The program differs from machine to machine because of the peculiarities of the hardware. This version doesn't have as nice animation as the Texas Instruments version. But Krell does have a Sprite program that will let you create animated scenes to a level of 32 tiles. (A *sprite program* animates the turtle; the *turtle* is a shape that draws the lines for the graphics on the screen. A *tile* is the background of a cartoon.)

Logo features real-number arithmetic, a full-screen editor that is automatically invoked as soon as you define a procedure, and a Help file. The documentation for this program is excellent. The manual is laid out with a table of contents, several examples, and a factual description of how to operate the system. Overall, it's a fantastic program in terms of price and value, though in actual practice, it's going to be the adult who buys the system and then has to set it up for the younger user.

***MIT Logo* runs on either an Apple II Plus or Franklin Ace 1000 under DOS 3.3, and requires 48K RAM plus 16K from the Language Card, AddRAM Card (ALS), or RAMCard (Microsoft). You'll also need a single 5 1/4-inch disk drive and either a monitor or TV. The program package costs $89.95 from Krell Software Corp., 21 Millbrook Drive, Stony Brook, NY 11790, 516-751-5139.**

Other References:

InfoWorld Report Card, December 1, 1983, p. 100.



Sargon II

There's nothing more relaxing than a good game of chess on a rainy afternoon. That is, if you can find someone who'll play with you. Sargon II, however is always a willing opponent and chess partner. All you have to do is turn on your computer, boot the disk, and Presto! computer chess!

Whether you're a beginner or an expert player *Sargon* will offer you challenging chess. The beauty of this particular game is that it provides helpful hints when you ask for them. This lets you analyze a specific playing situation and become a more competitive player.

Your moves are entered by using an easy-to-learn form of notation, not with a joystick. The chessboard is numbered up the sides and lettered A-H across the top. To make a move, simply enter the coordinates of the squares that you're moving from and to. It's that simple. And one word of advise, don't try to cheat. *Sargon* will honk at you whenever you make an illegal move.

You have six levels of play to choose from; *Sargon's* responses vary according to the level you're playing in. At the beginner's level, *Sargon* takes just a few seconds to respond to your moves; at Level 3, *Sargon* takes about two minutes; and at level 6, it can take *Sargon* up to four hours to make a move. Of course, you can take all the time in the world with your moves.

***Sargon II* runs on Apple II, TRS-80® Models I and III, Atari, Commodore® PET and CP/M-based computers. Tape versions cost $29.95; 5 1/4-inch disks, $34.95; and 8-inch disks, $39.95. For further information, contact Hayden Software Co., 600 Suffolk St., Lowell, MA 01853, 617-937-0200.**

Other References:

Creative Computing, February 1983, p. 110.

inCider, May 1983, p. 188.

Personal Software, Dec. 1983, p. 82.

VIC Forth

VIC Forth is an implementation of the FIG-Forth programming language for the Commodore VIC 20 system. It supports all the standard features of the Forth Interest Group language, except for the disk commands and some high-level words. That's because cassette-handling words have replaced them, since the system is tape oriented.

VIC Forth extensions let you control the color and sound features of your computer. Other features of this program include automatic side scrolling, a window-type editor, and commands that let you reference specific memory locations. The cursor commands operate within the editor window. Two numbers located in the lower right corner of the window keep track of the current screen number and column.

Movement between the system's various modes is accomplished by using combinations of control keys. For example, the unshifted Insert/Delete key puts you into the Insert mode of the editor; the Return key gets you out.

Installation of *VIC Forth* is simple: Just plug in the cartridge and everything's there, ready to run. The only problem you'll have with this package is with its user's manual. It is poorly produced (faint lettering), and not complete enough. To comprehend the workings of this program you'll have to supplement the documentation with a basic book on Forth, like Leo Brodie's *Starting Forth.*

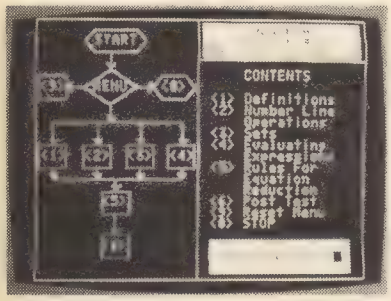
The only other difficulty you may have is in learning the definitions for the function keys which control the movement within the editor. But once you learn how to use them, they're very handy. Overall, this is a good beginner's Forth system with innovative editor features, but don't buy it without also buying Brodie's book.

***VIC Forth* runs on the Commodore VIC 20, and requires any RAM, with exception to the 3K expansion cartridge. It costs $49.95 from Human Engineered Software, 150 North Hill Drive, Brisbane, CA 94005, 415-468-4111.**

Other References:

Compute!, October 1983, p. 154.

InfoWorld Report Card, December 1, 1983, p. 106.



Algebra

I don't know about you, but I hated my algebra course in school. All those x's and y's confused me. I wish I'd had *Algebra* to help me out. It's a six-volume series that clearly explains the fundamentals of first-year math by combining graphics with concise explanations.

Volume I starts off with the difference between a number and a numeral, and by the time you reach Volume 6, you're able to solve quadratic inequalities by either factoring or graphing. You'll also learn about the Pythagorean Theorem, linear equations and other algebraic fundamentals.

Each volume is equivalent to six or seven weeks of classroom instruction, but you have total control over the pace and can decide the order in which you want to tackle the concepts and problems. Every learning unit first defines the concept, then explains the rules governing its use, gives examples, and finally lets you work through a problem. And at the end of each volume you take a test. Any weaknesses you show are identified by the program so that you can review those sections.

***Algebra* runs on the IBM PC, and the Apple II, II Plus, IIe, and III. Volumes 1-4 cost $39.95 each and combined Volumes 5-6 cost $49.95 from Edu-Ware Services Inc., P.O. Box 22222, Agoura, CA 91301, 213-706-0661.**

Other References:

Peelings II, Vol. 3, No. 1.

Personal Software, Dec. 1983, p. 103.

Suspended

You are the Central Mentality on the planet Contra, and you've just been pulled out of a state of suspended animation because of an emergency: The Filtering Computers are going wild and killing the inhabitants of your planet. You have to get things under control as quickly as possible (i.e. with the least amount of moves) or else you'll be replaced (i.e. lose the game).

How do you go about solving this crisis? Believe it or not, through six robots who are the extensions of your senses. Iris, for example, is your visual robot. She can see, and has some grasping extensions, but that's all. Auda can hear, Waldo is the repairman (or should I say, repair-robot?), Sensa detects vibrations, and so on. The problem is that they aren't all working properly. You'll have to have them fix themselves in order to retain your senses.

The real challenge of playing Suspended is being able to integrate the information given you by six completely different intelligences and personalities. The game reflects the science-fiction writing talent and imagination of Mike Berlyn.

***Suspended* runs on Apple, IBM, TRS-80, Atari, Commodore, NEC, Osborne, CP/M, and DEC computers. It costs $49.95 for the 5 1/4-inch disk version and $59.95 for the 8-inch disk version from Infocom Inc., 55 Wheeler St., Cambridge, MA 02138, 617-492-1031.**

Other References:

Computer Gaming World, July /August 1983, p. 10.

Electronic Fun, Nov. 1983, p. 72.

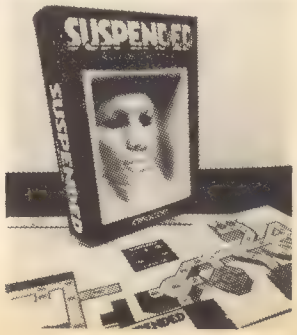
PC World, 1983/84 Annual Software Review, p. 318.

Personal Software, Dec. 1983, p. 71.

SoftSide, Issue 44, p. 52.

Analog Computing, July/August 1983, p. 64.

Softalk for the IBM, October, 1983, p. 55.



Typing Tutor II

To be productive on your computer doesn't require that you have good typing skills, but boy does it help when you've got a deadline to meet. *Typing Tutor II* is a straightforward, thorough, and easy-to-use typing program. It can teach you to type even if you've never touched a keyboard before. And, if you are a skilled typist, it will improve your speed and accuracy.

Typing Tutor starts off by teaching you the home row keys, drilling you until you become proficient. The program keeps track of the letters you learn by placing them in a column labelled Fast, and the ones you need practice on in the Slow column. As you move letters from the Slow to the Fast column, they are replaced by other Slow letters for you to learn.

As you type through each drill, a proprietary system called Time Response Monitoring (TRM), measures the amount of time between your keystrokes and determines your word-per-minute rate. The TRM function is set at a 30 wpm default. When you consistently type a letter at this rate or faster, it is moved from the Slow column to the Fast column.

Typing Tutor will also alert you to any typing errors, and has options that let you continue to drill, learn more keys, increase your speed, practice on a paragraph, or get a progress report of your performance.

***Typing Tutor* runs on the Apple II, II Plus or IIe with Applesoft® , and the IBM® PC. It costs $24.95 from Microsoft Corp., 10700 Northrup Way, Bellevue, WA 98004, 206-828-8080.**

Other References:

Personal Software, Dec. 1983, p. 75.

Easy Writer II

Easy Writer II is a two-disk word-processing program for the IBM PC. It features five available activities on its system disk which include edit, activate data disk, delete documents, print, paginate document, set current date, print document list, and system functions (referring to the Housekeeping Disk).

The Housekeeping Disk offers you ten selections on its main menu. You can copy documents, format a data disk, duplicate an existing disk, edit a default ruler, edit system parameters, check data integrity, change printer selection, configure printer type, and much more.

This program takes advantage of the PC's function keys, adding its own functions onto the ones of the computer. You use a ruler to format documents on-screen. The ruler is displayed at the top of the screen for your reference. With the ruler you can format the margins, line spacing, right justification, tabs, etc. What you see on your screen is what you'll see on your hardcopy.

Other features of the Easy Writer II include underlining, a merge function, headers and footers for each page, search and replace, text moving, boldface printing, superscripts, subscripts and more.

***Easy Writer II* operates on the IBM PC under IBM-DOS. It requires 64K RAM and two-disk drives. It costs $350 from Information Unlimited Software Inc., 2401 Marinship Way, Sausalito, CA 94965, 415-331-6700.**

Other References:

InfoWorld Report Card, December 1, 1983, p. 11.

PC World, 1983/84 Annual Software Review, p. 135.

Synthy-64

Creating music on your Commodore 64 can be a pain, requiring writing complicated BASIC programs involving POKEs. *Synthy-64* is a program that rescues you from all that drudgery and lets you quickly and easily create even complicated music.

Synthy-64 is simple to use: Using the BASIC line-numbering system, you assign the values for the notes, the octaves, and the note duration. No PEEKs or POKEs involved. And once you've assigned the values, you don't have to mention the octave assignment or the note duration unless they change.

The program has a Read-Ahead feature which means that it doesn't play just one note as coded and then go on to the next one. When it reads a note, it also reads ahead to see if the next note has the same voice coding. If it doesn't, it treats the notes as a chord. With *Synthy-64* you go well beyond the production of one-finger melodies. In fact, there are three voices available for simultaneous use.

Synthy-64 also features several presets: Line 63010 is a piano, line 63020 is a flute, line 63030 is a trumpet, line 63040 is a banjo, and line 63050 sounds like an accordion. The program also has all of the parameters of decay, sustain level, filter type and frequency and waveform type (sawtooth, triangle, pulse, or noise). You can create your own presets and use any three of them at any given time.

Although the *Synthy-64* is not a full-blown synthesizer, it is a stand-alone program. In other words, you can only use the program to create sounds and/or music compositions and then listen to them. You can't incorporate these sounds or compositions into any type of program that would be enhanced by their presence.

***Synthy-64* runs on the Commodore 64 and requires 64K RAM and a 1541 single-disk drive. It costs $32.95 from Abacus Software, P.O. Box 7211, Grand Rapids, MI 49510, 616-241-5510.**

Other References:

Compute!, October 1983, p. 152.

InfoWorld Report Card, December 1, 1983, p. 131.

SoftSide, February 1984, p. 69.

PerFin

PerFin is a personal finance record-keeping program that is designed for home users with no computer or accounting experience. It has 40 categories that you can use to manage your credit cards, mortgage payments, loan payments, cash transactions and so forth, and stores up to 4300 transactions on a single-sided disk.

The program has on-screen menus, and all routines are invoked by your computer's function keys. It features budgeting, editing and reporting utilities. Information can be retrieved by check number, date and record number. Unfortunately, it's not possible to retrieve a transaction by payee.

PerFin permits multiple items per transaction, but you have to enter a separate editing routine called Update to do it. Multiple-item entry isn't a part of the normal data-entry routine.

As for its reporting capabilities, *PerFin* can produce a complete monthly account detail report (ie. all transactions), a monthly account summary report (all balances and accumulated sales tax), a monthly report for any given category, and a monthly budget report that includes a bar-graph comparison of categories.

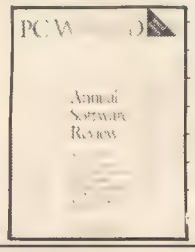
The only pitfall with this program is that the data-entry routine is clumsy and tedious. For every entry you make, you have to enter the date and check number. And since there's no running balance, check number, or date on the screen, it's easy for you to lose your place and either enter the same transaction twice or skip over it entirely.

***PerFin* runs on the IBM PC and requires 64K and one-disk drive. It's priced at $65 from Digital Engineering Group, 11999 Katy Freeway #150, Houston, TX 77079, 713-531-6100.**

Other References:

PC World, 1983/1984 Annual Software Review, p. 438.

Softalk for the IBM, June 1983, p. 97.



Time Accountant

If you operate your own business, you know the problems associated with keeping your accounting up-to-date and accurate. Well, the *Time Accountant* might be of interest to you. It's a program that provides you with a convenient and accurate hourly rate billing system. It can accommodate up to 800 clients and 13,600 billable transactions.

The system supports up to 254 different classifications of service which you can change. By using different billing-code numbers, you can bill for "phone call with client" or "phone call with the competition." You establish the pay rate for your clients, whether it's hourly or flat-fee.

Codes, names and addresses can be changed by yourself through update programs. It's safe since only the person knowing the correct password can change the sensitive data. You can change the password as necessary.

The *Time Accountant* has a special exit feature that performs all the file housekeeping. You must use it at the end of each posting session. If you exit by any other means, such as a power failure, the program's built-in recovery program will repair the damage.

In the billing routine, you can print all the bills, print none, or selectively print them. If your disk happens to fill up, you can consolidate the accounts into balance-forward status, wiping out all the individual transactions with one keystroke. All changes you make are verified by the computer before carrying out the command.

The *Time Accountant* runs on the Commodore CBM-8032 with 32K RAM. It costs $425 from Image Software, 3678 Nicole, Las Vegas, NV 89120, 702-451-4164.

Other References:

InfoWorld Report Card, December 1, 1983, p. 77.

Word Worker

The *Word Worker* is a collection of four similar programs, each adapted to particular text-handling operations. The core system is a line-oriented editor that lets you enter text from the keyboard. Editing operations require that you transfer from the Text Entry mode to the Edit Mode.

The program supports many advanced features, including word-wrapping, semi-automatic hyphenation, footnote insertion, automatic paging, headers, footers, searching and replacing, and much more. *Word Worker* provides you with almost any print-format option you might desire.

One problem with this system is that it doesn't support Commodore's full-screen editor. You must reach lines already entered by reference to their numbers. You have to type the changes, then insert them in the line. To reformat an edited line, you have to tell the computer to adjust the text, which is stored as one string per line.

***Word Worker* programs are designed to be used on any computer configuration that uses Basic. It can be used on the Commodore PET/CBM, IBM PC, and TRS-80 Models I and III. It requires 32K RAM and a 4040 disk drive on the Commodore computer. *Word Worker* costs $29.95 from Design Enterprises of San Francisco, P.O. Box 14695, San Francisico, CA 94114, 415-282-8813.**

Other References:

InfoWorld Report Card, December 1, 1983, p. 27.

CyberLogo

CyberLogo teaches students programming skills in an understandable fashion. It provides them with an atmosphere where they can experiment with geometric concepts and design fundamentals. The student is hindered only by his or her imagination.

The package includes seven programs, which help you to understand the Logo language. The programs feature turtle graphics, a full-screen editor to help you write your own programs, a filing system for saving your programs and screen drawings, sound, and six different background colors for creating interesting designs. There's also an on-line Help mode which provides a quick reference to the Logo language, program operation, and frequently encountered problems.

CyberLogo introduces you to new commands slowly and systematically, with several sample programs to illustrate and reinforce these new concepts. The program starts you off with simple turtle movements first and explains the more advanced programming concepts later on. *CyberLogo* has a volcabulary of more than 40 words, and some of these commands can be abbreviated to just two or three letters.

The most serious problem with *CyberLogo,* involves pressing the Control and C keys to compile a program while in the editor. If you happen to press Control-C while on a blank line, the program will crash, and you'll have to reboot to get started again. The manufacturer is aware of this problem, and is presently error trapping it.

Overall, *CyberLogo* is an excellent program that educators and parents will find very useful in teaching their children the fundamentals of programming. The program is easy to use, and has clearly-written screen prompts and error messages.

***CyberLogo* runs on the Apple II Plus under DOS 3.3, and requires 48K RAM and one-disk drive. It costs $79.95 from Cybertronics International Inc., Software Publishing Division, 999 Mount Kemble Ave., Morristown, NJ 07960, 201-766-7681.**

Other References:

InfoWorld Report Card, December 1, 1983, p. 102.

VIS/Bridge/Report

One of the major criticisms about VisiCalc is its limited report-printing abilities. Well now there's *VIS/Bridge/Report* to rescue you. It's an easy-to-use program that gives you expanded flexibility and control. If you're familiar with VisiCalc, you'll have no problem getting this package up and running within an hour's time.

It must be pointed out that *VIS/Bridge/Report* affects only the printed output to paper and disk, not your screen display. With this program you can now have variable column widths; left- or right-align or center entries within each column; automatic pagination, print all values within a column with the same number of places to the right of the decimal point; an optional title line (up to 40 characters); and control over the number of lines to be printed per page, the width of the lines, and the physical size of the paper used.

The program also allows you to create ASCII print files on disk, and edit entries until they meet your standards of excellence. During processing, the program flags errors in column-format definition or file specification, and prompts you to supply new specs so that you don't have to return to the first procedural steps.

VIS/Bridge/Report protects you from errors by a system of data validations and range checkings, supplemented by explanations. It's reassuring to know that while you're using this program that no error — not even a power failure — can result in the loss of data, since all the data already resides on disk.

The only shortcoming of this package lies with the documentation. There are several small slips and omissions that will confuse the beginner. The company does, however, send a letter to all users whenever it recommends a change. These letters, like most of the manual, are clear and thorough.

***VIS/Bridge/Report* runs on the IBM PC under PC-DOS, and requires a minimum of 64K RAM, one-disk drive and a printer. It costs $79 from Solutions Inc., P.O. Box 989, Montpelier, VT 05602, 802-229-0368.**

Other References:

InfoWorld Report Card, December 1, 1983, p. 48.

Hello Central!

It's a dream come true: A powerful telecommunications package that provides just about every capability you'd ever want and that is so easy to use that you can be effectively using it within an hour or two. And that's just what *Hello Central!* is capable of doing.

The program is menu-driven and has two telephone directories: A voice directory for calls you make yourself, and a data directory for calls your computer dials. However, you have to use the Hayes Micromodem in order for your computer to auto-dial.

Once you've connected with the system you're calling, the program automatically enters the terminal mode so that you can transmit and receive data. Characters are put on the screen as they come in and are sent out over your modem.

Other features of *Hello Central!*, include a Pick-Up Phone option which lets you set up the program to answer the phone and download data; a complete text editor that lets you edit your downloaded data files; and the ability to transmit Applesoft or binary files through the use of a utility.

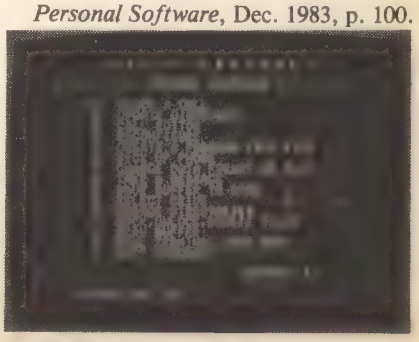
***Hello Central!* operates on the Apple II, and costs $99 from Howard W. Sams & Co., 4300 West 62nd St., Indianapolis, IN 46206, 317-298-5400.**

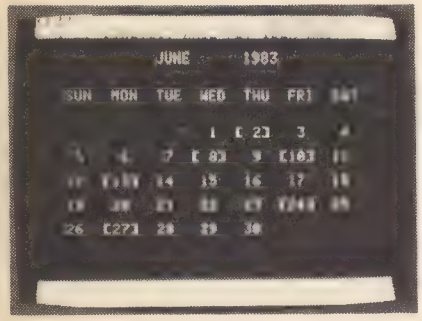
Other References:

Micro, August 1983, p. 131.

Personal Computing, June 1983, p. 196.

Personal Software, Dec. 1983, p. 100.





VisiDex

Having *VisiDex* is like having your own personal executive secretary. An electronic filing system, it manages both your personal files and appointment calendar. Information that you normally would store on a three-by-five notecard, appointment calendar or in a personal phonebook, stores nicely on a *VisiDex* data disk.

Every file entry is limited by your screen size. Apple users can store 20 lines of 40 characters each of information for each file. As for search key words, they can be up to 253 characters in length. Any keywords that you give the file are listed at the bottom of your screen so that you can view the key words you've flagged for each file. The key-word function lets you perform complex sort routines.

Searches can be for specific key words as "Business" or for partial wildcard key words as "Los-les" for Los Angeles. You can even get more specific in your searches with the ampersand (&). Words following the & are used to search screens for the character string that comes after that word (e.g. Games-&Cost 50, tells *VisiDex* to search for games that cost less than $50).

***VisiDex* runs on the IBM PC, and the Apple II, II Plus, IIe, and III. It costs $250 from VisiCorp, 2895 Zanker Rd., San Jose, CA 95134, 408-946-9000.**

Other References:

PC World, 1983/84 Annual Software Review, p. 202.

Peelings II, Vol. 3, No. 8.

Personal Software, Dec. 1983, p. 146.

Moptown

Here's an ideal educational game that tests your children's skill against the moppets of Moptown. The program uses Gribbits and Bibbits of various shapes, colors and types (you can have sixteen different moppets) in various game combinations to teach your child a different aspect of logical reasoning. The trick to this game is to develop rules for the combination of these characteristics for a variety of purposes.

For example, the game "Make My Twin" lets your child build a twin for the moppet displayed on the screen. If your child builds it correctly, he or she is rewarded with a pleasant set of beeps and flashes. If the twin doesn't match, the computer will make certain that your child knows it and will let him or her try again.

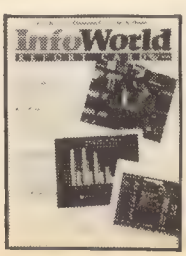
Another game lets your child figure out what's different about a set of moppets, or who comes next in a series of moppets. As the games become more difficult, the reasoning required to figure out which set of characteristics is called for also grows more difficult. "Moptown Hotel," the last game, requires a several-dimension combination of characteristics.

Moptown is ideal for children in elementary school. The program is user-friendly, and the on-screen commands and instructions easily lead you through the various games. In fact, you don't really have to read the manual (although you should anyway). If your child can turn on a computer and play a game, he or she will have no problem with this program.

***Moptown* runs on Apple II or II Plus under DOS 3.3 and requires either 48K RAM and Applesoft in ROM or 48K RAM and 16K RAM Card. It costs $39.95 from Advanced Learning Technology Inc., 545 Middlefield Road, Menlo Park, CA 94025, 415-328-5410.**

Other References:

InfoWorld Report Card, December 1, 1983, p. 94.



Multiplan

The *VisiCalc*® spreadsheet program now has some competition from Microsoft with its *Multiplan* program. *Multiplan* has the usual features of most generic spreadsheets, including the built-in command structures for performing several mathematical computations and business-related abilities that handle calculations such as net present value, index, minimum, maximum, sum, value, standard deviation and others.

The "$" command provides you with powerful diversity. You can use it as a cell argument, or format an entire block of cells with it. One of the most important computational and formatting commands of *Multiplan* is the Iteration command. With it, you can do iterations on a specific cell group to determine an unknown value.

This command also lets you perform internal rate of return computations. In addition to this function, *Multiplan* lets you design lookup tables and use indexing to retrieve data from the different cell blocks. You can search both by alpha and numeric delimiters, and name rows and columns using English words.

Another feature of *Multiplan* is its window function: Up to eight windows can be displayed at one time on your screen. This includes an extensive on-line Help screen and several printing format options. You can scroll two worksheets at once.

The only complaint heard about *Multiplan* is the slowness of its Automatic Recalculating feature that retabulates the figures when you alter the data. But other than that, *Multiplan* is a definite heavyweight contender against *VisiCalc.*

***Multiplan* operates on the IBM PC with 64K RAM. It is priced at $275 from Microsoft Corp., 10700 Northrup Way, Bellevue, WA 98004, 206-828-8080.**

Other References:

inCider, October 1983, p. 214.

InfoWorld Report Card, December 1, 1983, p. 42.

PC World, 1983/84 Annual Software Review, p. 110.

99'er Home Computer, June 1983, p. 38.

PC World, Vol. 1, No. 2, p. 124.

Softalk, December 1983, p. 389.

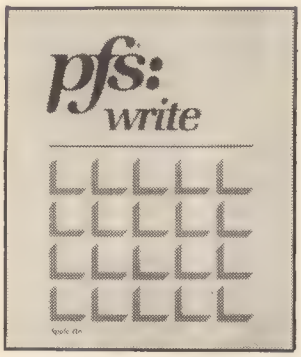
PFS:Write

PFS:Write integrates word-processing capabilities into the existing *PFS* software line. Data can be shared between the programs, and *PFS:Write* can also read text-file output from most other software as well.

The program has a mail-merge function that uses data from *PFS:File,* and features other functions such as an automatic envelope generator, headers and footers, four Help screens, on-screen underline and boldface, word count, decimal tabs, global and wildcard search and replace, and automatic word wrap. You can also highlight blocks in inverse video and delete, move, and copy within a document, or move to a new file.

Documents appear on-screen as they will look when you print them off. The screen defines the page, and a ruler at the bottom of the screen shows you what column the cursor is in and where your tab and margin settings are located. A status line located below the ruler gives the document name, the line number the cursor is on, document length, and what function you're performing.

PFS:Write can be used with *PFS:File* to produce personalized form letters; *PFS:Report* to create data tables; and *PFS:Graph* to design and produce graphs for your documents. Spreadsheets from VisiCalc and text from other programs can also be inserted into *PFS:Write* as well.



The only problem with this program is that it doesn't provide right justification. Other than that, it's an excellent package. Each program comes with a manual which has an illustrated tutorial, a reference guide, and a function key template.

***PFS:Write* runs on the IBM PC (128K RAM), the Apple IIe (64K RAM) and the XT and equivalent computers with 128K RAM. The IBM PC version costs $140 and the Apple version $125 from Software Publishing Corp., 1901 Landings Drive, Mountain View, CA 94043, 415-962-8910.**

Other References:

PC, 1984 Winter Buyer's Guide, p. 179.

PC World, 1983/1984 Annual Software Review, p. 152

Personal Computing, July 1983, p. 203.

Personal Software, Dec. 1983, p. 90.

Softalk for the IBM, Nov. 1983, p. 140.

Cardfile

You can use *Cardfile* for almost any indexing task. Its structure is relatively free-form, meaning that you can define your own index keys. You define these keys within a prompt file on your own word processor.

There are two forms on the *Cardfile* program: The long form maintains a file made up of 21-line records; the short form handles a file made up of six-line records. Each line can hold up to 72 characters. You can flag records for printing and to erase records that you no longer need. The program automatically compresses the disk file when you erase records.

The performance of *Cardfile* is directly linked to the quality of your word processor. The manufacturers recommend that you use WordStar® , Spellbinder, or Peachtext with their indexing program.

***Cardfile* is designed for 8080- or Z80-based computers that run CP/M 2.2 and that have 48K RAM. The program costs $89 from Digital Marketing for Pro/Tem, 2670 Cherry Lane, Walnut Creek, CA 94596, 415-938-2880.**

Other References:

InfoWorld Report Card, December 1, 1983, p. 71.

Peelings II, Vol. 4. No. 2.

Plan 80

Plan 80 is a menu-driven financial modeling system that uses English prompts and names instead of numbers to address rows and columns. It combines the model development, operating and report formatting styles of timesharing-based systems with some of the interactive graphic capabilities of stand-alone computers.

Besides having the ususal commands and features of VisiCalc, *Plan 80* also lets you suppress the printing of any column or row of your choice, display calculations on the screen in either scatter plots or bar-chart form, specify titles at the top and bottom of your charts and for their vertical axes, execute limited-scaling commands, and plot up to three rows at a time in bar-chart form.

Other features of *Plan 80* include table lookup, consolidation, and what-if analysis. As for financial functions, the spreadsheet can perform depreciations, net present value, trigonometric calculations, IF...THEN...ELSE functions, internal rate of return, and amortization. And, as a definite bonus, its scatter plot will let you plot any row against any other.

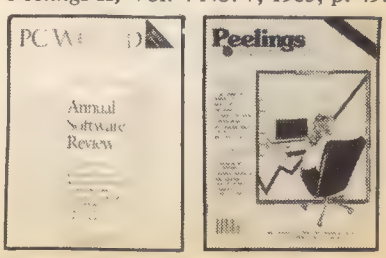
A drawback to this program is that both the calculation and cursor movements are considerably slower than you find in VisiCalc. It also lacks flexibility in vertical axis scaling. It's virtually impossible to have your vertical axis start at 0.0 and end at a given value. Nor can you select the number of marks defining the vertical axis or the increment between the marks.

***Plan 80* runs on most CP/M 2.x-based systems with 128K RAM, and requires two-disk drives and either a text editor or a word processor. It costs $295 from Digital Marketing Corp., 2363 Boulevard Circle #8, Walnut Creek, CA 94595, 800-826-2222.**

Other References:

PC World, 1983/1984 Annual Software Review, p. 121.

Peelings II, Vol. 4 No. 7, 1983, p. 49.



Palantir

The trend today is for word processors to offer a wealth of features, and *Palantir* won't disappoint you. In fact, the most difficult task you'll have is in trying to find out what it can't do. I'll give you a helpful hint, though: Not much.

Palantir is easy to learn, easy to use, and hard to use incorrectly. Besides offering standard word-processing commands, the program also features text scrolling by line, screen, page, or document; search and replace up to 64 characters; left and right margins; tab stops; lines per inch; characters per inch; sub- and superscripting; overstrike characters; and justification of your choice. Text can be formatted in a number of ways, including overstruck, split, double-underlined, merged with another file, numbered pages in any fashion you want (including alternate positions for odd and even page numbers), headers, footers, decimal tabs, and much more.

One other useful and valuable function of *Palantir* is its provision for lexicon files. Lexicon lets you store and recall often-used phrases, each of which can be up to 250 characters long. Entries can include blank lines and carriage returns if you wish. And a last feature of this program is that you can call up a file and scroll page-by-page without losing your place in the document you're editing.

Palantir isn't just a single program, but is rather a collection of subprograms that shuttle in and out of memory. And unlike other word processors, it won't fill up your RAM and leave you without any room for your text. *Palantir* also uses a virtual filing technique to send portions of your text to disk as the document grows in size. This is because, in theory, a single document can fill up an entire disk.

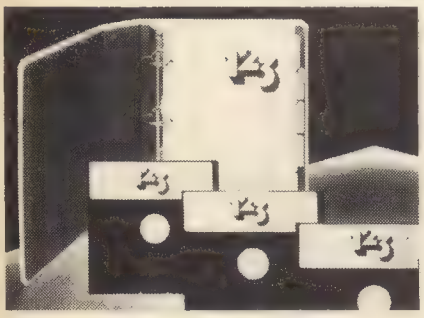
Although Backup is not automatic, *Palantir* won't let you accidentally destroy or delete your text; nor can you exit the program without either saving or discarding your document. The virtua. filing system, though, will prevent you from having a heart attack should your child accidentally pull the plug.

When you purchase *Palantir,* you actually end up with two programs: *Palantir* and *Mailout,* a mini-programming language that lets you create custom mass mailings.

***Palantir* runs on the IBM PC under DOS 1.1 or 2.0, and requires 64K RAM and at least one-disk drive. It costs $450 from Designer Software, 3400 Montrose Blvd., Suite 718, Houston, TX 77006, 713-520-8221.**

Other References:

PC Magazine, December 1983, p. 491.
Softalk for the IBM, July 1983, p. 131.



Lotus 1-2-3

The *Lotus 1-2-3* is an integrated spreadsheet, information-management, and graphing package for the IBM® PC and Compaq®. Although it acquits itself favorably as a word processor, the *Lotus 1-2-3* shines with its spreadsheet capabilities. Its worksheet can be as large as 256 by 2048 cells, and the program calculates large worksheets faster than most other spreadsheets on the market.

This package contains as many mathematical, algebraic and trigonometric functions as any other available spreadsheet. With it you can perform absolute value, exponential, logarithmic and many other funstions. All trig values are made available to you.

The spreadsheet is capable of figuring out net present value, future value, payment calculations, present value, internal rate of return, and statistical functions like max/min, standard deviation, variance, mean, average and so on. You can also do sorts and retrievals quickly and can apply Boolean logic on multiple levels for keyword searches, as well as design data tables to go along with your spreadsheet information.

If you'd like to supplement your data with visuals, *Lotus 1-2-3* lets you design graphs and have the program print them out. Bar, line, scatter and pie- shape graphs can all be produced with Lotus. However, if you want this capability, you'll have to buy a red-green-blue color monitor and a graphics printer.

One of the more important features of *Lotus 1-2-3* is its keyboard macros. They let you assign key sequences to just one key. With this feature you can integrate long sequences involving several cells, calculations, text, prompts and other features into one keystroke. It's a time saver.

As for its data-base capabilities, it doesn't do everything that *dBase II* does. But then again, Lotus costs less and doesn't claim to be a fully functional DBM.

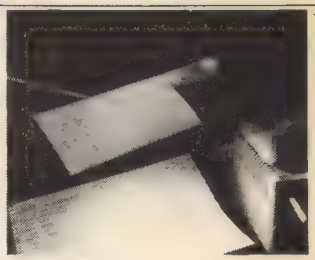
The only complaint with Lotus is that it's just too large to be easy to use. This is not to say that the individual operations are too difficult to learn, but rather that you will not be able to effectively use this package in half an hour. The tutorials can take up to half a day to work through, and they cover a variety of involved functions. It is possible to get bored and forgetful as you try to get through them all. Other than that, *Lotus 1-2-3* is the best thing since peanut butter.

***Lotus 1-2-3* runs on an IBM PC or Compaq and requires PC-DOS or Compaq DOS with two double-sided, double-density disk drives. The manufacturer recommends one floppy-disk and one hard-disk drive with 320K. The package costs $495 from Lotus Development Corp., 161 First St., Cambridge, MA 02142, 617-492-7171.**

Other References:

InfoWorld Report Card, December 1, 1983, p. 88.
PC World, Vol. 1 No. 1, 1983, p. 102.
PC World, October 1983, p. 120.
PC World, 1983/1984 Annual Software Review, p. 454.
Softalk IBM, October 1983, p. 96.
SoftSide, March 1983.

Let There Be Light!



It's late at night and you're close to breaking the record on Xylon, but everyone else is going to bed. What do you do? Stay up with the light glaring in your wife's (husband's) eyes? Or turn off your computer and hope that you do as well in the morning? You can solve this dilema with the IPL-600 light. It's a cool, color-corrected, mini- fluorescent bulb that draws just 13-watts of power while providing as much illumination as a 75-watt bulb.

Made of sturdy ABS plastic, the light has a custom-designed reflector that produces even illumination with no hot spots. The continuously-curved lamp surface directs the light down in a sharply defined pear-shaped pattern. This reduces glare on paper sharply defined pear-shaped pattern. This reduces glare on paper while being bright enough so that you can read a program listing easily.

The IPL-600 has an arm reach of 28-inches so that you can position it to your needs, and it features a 3-wire cord and plug for safety purposes. UL listed, it costs $99.95 from Ledu Corp., 25 Lindeman Drive, Trumbull, CT 06611, 203-371-5500. It's available in almond, brown or black.

Double-Sided Storage

You may never have to buy a floppy disk again with the Disk Doubler kit from Evolving Technology Co. (3725 Talbot St., Suite F, San Diego, CA 92106, 619-224-3788). It lets you use the back sides of your disks to store additional programs and data files. The four-step alteration process is not only fast, but safe as well. You simply align the template over your disk and use the hole punch as indicated.

The Disk Doubler works on any single-sided, soft-sectored 5 1/4-inch disk, and the kit comes complete with everything you'll need, including template, hole punch, marking pen, special insert and a user's manual. It has a suggested retail price of $19.95.

Worth Their Weight In Gold

Disks are damaged and data lost, often permanently, to heat and humidity every day. Don't think so? Well, have you ever had a disk written at home on the kitchen table that couldn't be read the next morning in the cool, dry, air- conditioned environment of the office? I'll bet you have. Well, now there's Intelligent Disks to the rescue.

What separates these disks from others on the market? They have unique temperature and humidity sensors that warn you of when your disk has been exposed to high temperatures or excessive humidity; conditions which may lead to the loss of your data.

The sensors gradually change from blue to red as the humidity goes from eight to 80 percent, and from an off-white to black at temperatures of 120 degrees F. In other words, these disks actually warn you of impending doom to your data so that you can take the appropriate action before it's too late.

A box of ten single-sided, double-density Intelligent Disks cost $52.50 from Omni Resources Inc., 50 Howe Ave., Millbury, MA 01527, 617-865-4451.

New Products listings are based on information supplied by manufacturers in their press releases. SoftSide has not tested or reviewed these products and therefore can not guarantee any claims made.

The Night The Lights Went Out

It's a programmer's nightmare: The power goes out right in the middle of a delicate programming subroutine. A surge suppressor helps to protect your data from power fluctuations, but it doesn't help you any when there's no power. To prevent this from happening to you, you should consider buying an uninterruptible power supply, like the UPS from Bits Power Systems (11020 Audelia Road, Suite B114, Dallas, TX 75243, 214-340-1280).

Unlike other power systems, the UPS unit doesn't transfer your computer from the utility line to battery-derived power after a power outage. Rather, it's always on-line. Utility-line power is used only to maintain a full charge on the UPS's internal gel-type batteries.

The unit has visual, audible and remote alarm functions. Its standard full-load back-up time from its internal batteries is about ten minutes. You can, however, plug in external 12-volt batteries into the UPS unit for extended backup time and automatic charging.

There are two models of the UPS available: The UPS-200 (200-watt), weighing 35 pounds; and the UPS-400 (400-watt), weighing in at 55 pounds. They are priced at $795 and $995 respectively. Both come in an attractive black-anodized, brushed-aluminum cabinet, and have four standard grounded outlet receptacles.

Clean Phone Lines

The Kleen Line Security system (Model PDS-11/SUP) protects your computer modem from damaging telephone and power-line spikes caused by lightning, sperics or phone-office switch equipment. It uses modern semiconductor, metal-oxide varistor, and gas discharge tube suppression techniques to provide your modem with complete protection.

The system has suppression on red and green phone lines (pins 3 and 4) with the yellow and black lines brought straight through. A 6500-amp suppressor protects the AC power line. Installation is simple with a standard modular 4-pin telephone connector.

The Kleen Line Security system costs $81.95 from Electronic Specialists Inc., 171 South Main St., Natick, MA 01760, 617-655-1532. They also have models for the wider 8-pin telephone modular connectors (RJ-45).

The World At Your Fingers

One of the pluses of owning a computer is having access to great amounts of information and data that's stored on other computer systems. But how do you go about retrieving this data? Well, that's where The Computer Phone Book comes in. Written by Mike Cane, it's a comprehensive directory that lists over 400 on-line databases which you can access with your computer.

In addition to the various listings, Cane also tells you what computer networking is, how it can enhance your computing power, and how to connect your computer to such a network. You can access such services as UPI/AP News Services, Dow-Jones Line, weather reports, dating networks, electronic mail, sports scores and updates and much more. A complete subject index helps you to find the specific network or database that you're looking for.

The Computer Phone Book costs $9.95 from the New American Library, 1633 Broadway, New York, NY 10019, 212-397-8000.

Portable Paper

Most printer paper comes in large, heavy and bulky boxes which don't really invite you to take them along with you on your next business trip. But that's changed with stock-format computer paper packaged in take-along briefcase boxes. The one- and three-inch thick boxes hold either standard or legal-sized paper which feeds directly from the box to your printer.

The briefcase boxes are made of heavy-duty cardboard and are very stackable, reusable and portable. There are a variety of paper weights and quality for you to choose from, enabling you to have a manageable supply of the right kind of paper on hand.

Pricing ranges from $5.20 to $24.45, depending upon the kind of paper and weight you desire. For further information, contact Computer Peripheral Products Inc., 4690 Joliet St., Denver, CO 80239, 800-874-2238.

Enhance Your Word Processor

Upgrade *WordStar, Electric Pencil* and other CP/M-based word-processing programs with MagicBind. It adds important features that each of these programs is missing, including true proportional spacing, automatic footnotes (fifteen per page) with user-defined designations, text screening with page-break display, automatic handling of widow/orphan lines, multi-column printing and much more.

MagicBind also is capable of file merging, printing form letters, and generating bibliographies, customized wills, contracts, and other legal documents. This program helps do away with your having to spend a lot of time manually checking your texts.

An assembly language program, MagicBind costs $250 from Computer EdiType Systems, 509 Cathedral Parkway 10A, New York, NY 10025, 212-222-8148. It comes with documentation in a three-ring binder, and a disk with program and data files to demonstrate basic formatting functions.

Wipe and Write Labels

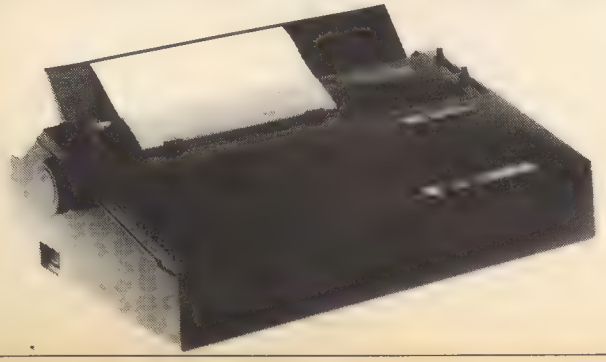
So how many disk labels have you gone through this year? 50? 100? It seems that, whenever you change the data on your disks, you have to scrape off the old labels and afix new ones in their place. Well, now there's a better method that will save you both time and money: Rewrite Labels from Holman Data Products (2059 West Lincoln, Oroville, CA 95965, 916-533-5992).

These special labels, measuring 1¼-by-4½-inches, are reusable over and over again. You simply use the special pen that comes with the kit to write on the label. Whenever you have to change or update the label, just use a damp cloth or tissue to erase the label. Every label has seven numbered lines available for you to define the disk's contents.

100 Rewrite Labels with one marking pen costs $9.95. Replacement pens are available from your local office-supply store.

The DTC Style Writer . . .

...is a letter-quality printer that features a 35K buffer that can store up to 20 pages of text at any given time, and that prints at 11-characters per second (cps). Other important features include bidirectional printing, an interchangeable print-wheel cassette, graphic plotting capability, automatic underscore, printing pause switch, two-color printing, and automatic proportional printing.



One of the special features that makes this printer unique, is a self-test diagnostic routine that thoroughly evaluates the Style Writer's internal electronic circuits and its print mechanism. Any errors or malfunctions are indicated by labelled LED lights on the front panel.

The printer measures 18 by 13 by 7 inches, and weighs approximately 20 pounds. Some of its optional features include seventeen different type fonts to choose from, a bidirectional cut-sheet feeder, a forms tractor for continuous paper feed, and a 67K expanded buffer. The DTC Style Writer costs $899 from Data Terminals and Communications, 590 Division St., Campbell, CA 95008, 408-378-1112.

COMING NEXT MONTH

Robotics and Home Control

Take a look around you; we're becoming a more automated society: All those photoelectric highway lights, remote-control devices for your TV, industrial robots, computer-controlled security systems, coffee makers . . . the list goes on and on. Recognizing this trend, our next issue (–49) will explore the world of Robots and Home Control.

Robotics is a fascinated and rapidly-growing field. One of our authors, S. F. Tomajczyk, visited Ann Arbor, MI (the robotics capital) to discover firsthand what type of research is being done with industrial robots, how they are being used today, and what the future holds for them. You can read about his findings in *The Steel-Collared Worker.* And for those of you who think you know everything, you can determine your R. Q. (Robot Quotient) with Sharon Zardetto Aker's *RoboTrivia.* It's a collection of 40 trivia questions about Robots, both real and fictional, and it's guaranteed to keep your mind searching for the correct answers.

On the home-control side, our features editor, Michael J. Tucker, takes a close look at what the BSR-10 Home Control System can do for you and your home. And Pat Teeboom will provide you with an inside look at the computerized home of the future with her review of *Xanadu* (Acropolis Books Ltd.)

Yes, issue 49 looks interesting. Keep an eye out for it . . . or program your computer to do it for you!

PLUS! Lots more *MAGDEX CARDS* to continue building your home reference library.

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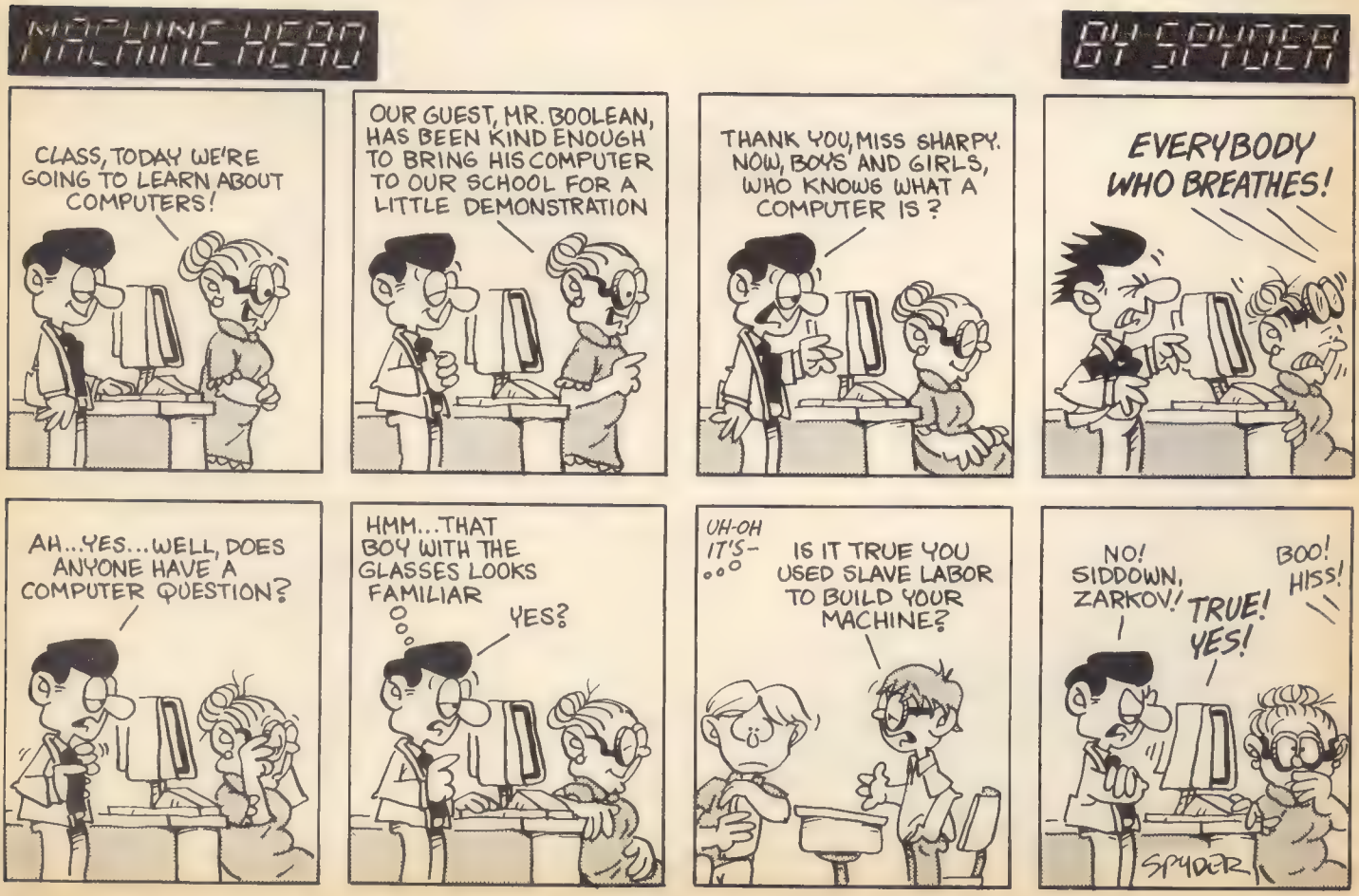
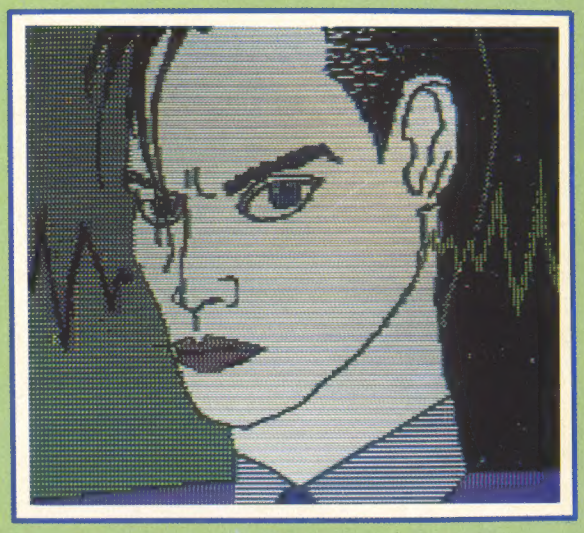
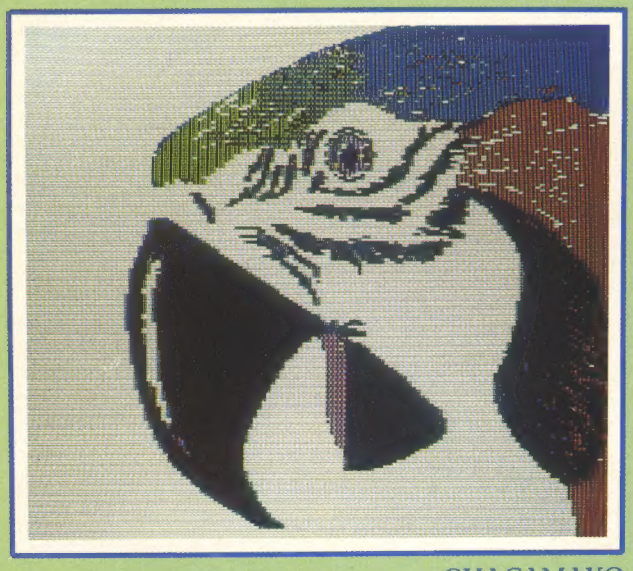


The SoftSide Gallery

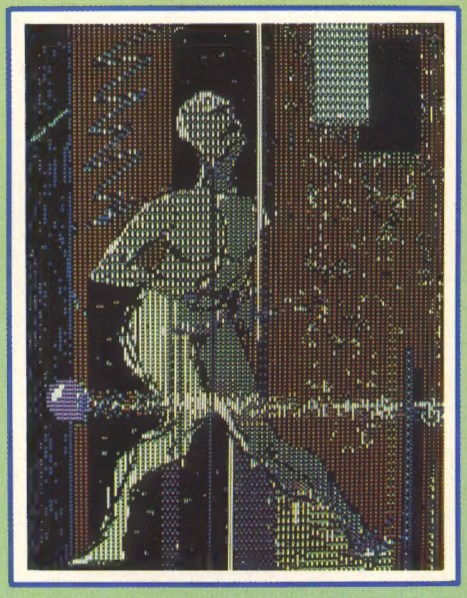
In this issue, The SoftSide Gallery exhibits the work of artist William C. Bramble III. Mr. Bramble has created these, as well as the "Database 1" graphic on page 2 using an Apple IIe computer and his own "secret recipe" of personally modified software. He can be contacted at 3069 Barker Avenue, Bronx, NY 10467.



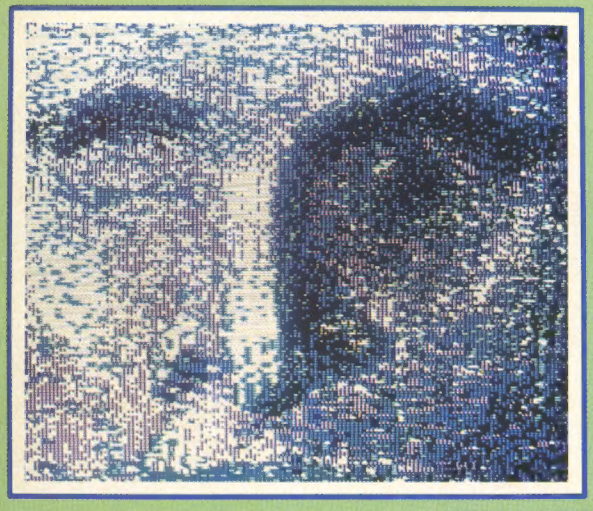
MODERN MAN



GUACAMAYO



AGONY 01



THE FACE

SoftSide cordially invites its readers to send us slides of their own computer graphics for future display in The SoftSide Gallery.

IF YOU HAVE THE ATARI, WE HAVE THE PRINTERS.

GP-700AT
Full Color Printer – $599.

COLOR – is the big feature of our GP-700AT Atari direct-connect printer. It's fast, quiet and the bright colors will make any presentation come alive. We provide cable and screen dump programs to eliminate any installation problems. 850 interface is NOT required, even if you daisy-chain a disk drive or cassette recorder. You can print, plot and screen dump in 25 colors with Axiom's GP-700AT.

GP-550AT
Dual Mode Printer – $399.

QUALITY – is the keynote in our near letter quality mode with a density normally costing twice as much. You get friction, fully adjustable tractors, and even bottom feed for label printing. 850 interface is NOT required. We supply cable, manual and screen dump programs to get you off to a flying start. You can even daisy-chain a disk drive or cassette with the GP-100AT Atari direct-connect printer.

GP-100AT
Economical Printer – $299.

COST – is small but features are many. You get graphics and adjustable tractors. Uses full size standard fan-fold paper. Just take it home, plug it in and you'll be printing in minutes. The GP-100AT Atari direct-connect printer comes with screen dump to provide spectacular graphics, and you can daisy-chain other peripherals. Again, NO 850 interface is required.

AT-WORDSTORE
Printer Buffer – $299.

EFFICIENCY – is what you get with our 32K printer buffer. Features include pause and copy. WORDSTORE can be connected to Atari computers WITHOUT an 850 interface. Other peripherals can be daisy-chained. Accepts any Centronics-parallel input printer. Two year warranty. Best of all, WORDSTORE is priced well below other printer buffers.

AT-846
Expansion Interface – $99.

SIMPLICITY – it's just like Atari's 850 interface, but without the four funny serial ports. Great for interfacing any parallel printer to your Atari computer. Can daisy-chain other peripherals, too. By the way, if you think up a name for this product, drop us a line. If we use it, we'll send you a color printer free. Contest ends 12-31-83.

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Presenting The Best of SoftSide™

For the past four years **SoftSide** Magazine has been bringing you the finest in microcomputer software. Now **SoftSide** has gathered the best Games, Adventures, Simulations, Utility Programs, and other software together into **The Best of SoftSide.**

Three books, one each for the Apple, Atari, and TRS-80 microcomputers are packed with BASIC code from the very best out of the hundreds of programs we have published. Each program is complete with valuable improvements and enhancements offered by hundreds of users! **SoftSide's** official debugging utility, S.W.A.T. (Strategic Weapon Against Typos), is included for each program. Compact, useful instructions and programming footnotes for the curious and the enhancer add dimension to the usability of the software.

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Not the typing type? — Then the disk version of ***The Best of SoftSide*** is just what you're looking for. All of the programs from the book, already typed in and stored on disk for your convenience — just put the disk in your disk drive and away you go. Each version has at least one-full disk side * of programs ready for you to use and enjoy.

Learn how to make your computer do what you want it to. Many of our readers credit **SoftSide** for improving their ability to program.

Experience the convenience of **The Best of SoftSide's** "steno" format. No more taking an awkward book to your computer to type in a program or read documentation. The book is scaled to coordinate with most of the other manuals in your software collection.

Explore our exciting games, practical applications, and helpful utilities. Fast paced Arcade Games... Database Managers...Word Processors...you'll get them all for only a few cents each.

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Play exciting games on your computer. **The Best of SoftSide** will take you...to the stars...to a casino in Vegas...even into the fantasy worlds of your imagination.

Create imaginative programs of your own with **The Best of SoftSide's** utilities and subroutines. We'll teach you how to use some powerful software tools,step-by-step.

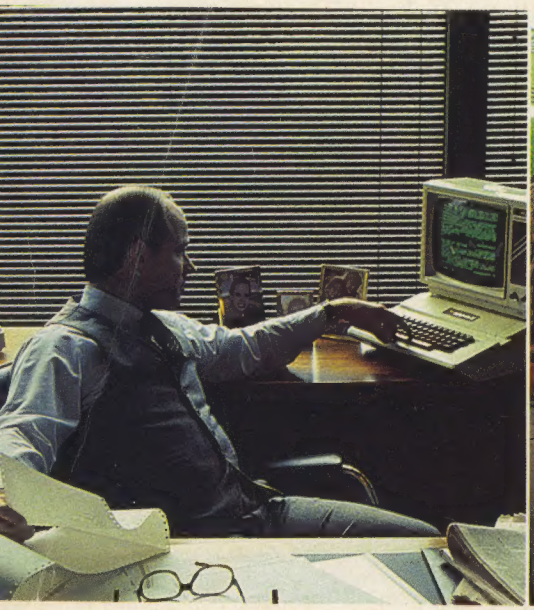
A true software bargain, **The Best of SoftSide** offers between 16 and 20 outstanding programs (depending on system edition) conveniently steno bound and printed on non-reflective paper for ease of use when typing the code into your computer. All this for the special low price of only $14.95 per book, or $49.95 per book and disk combination. If you already have the book and wish to order the disk, the additional cost is $35.00. **Important:** Be sure to specify computer make and model when ordering!

Use the bind-in card in this issue to order today! Mail it with your payment or credit card number to: **SoftSide Publications, Inc., 10 Northern Blvd., Amherst, NH 03031.**

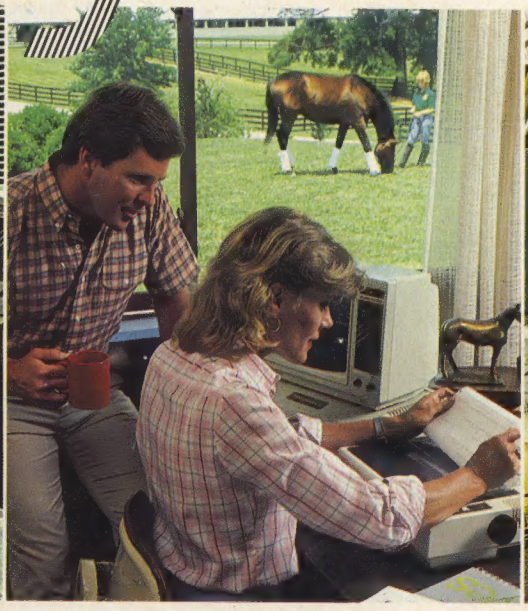
*Number of disk sides varies due to varying disk storage efficiency on different computers.

Your Apple's telephone.

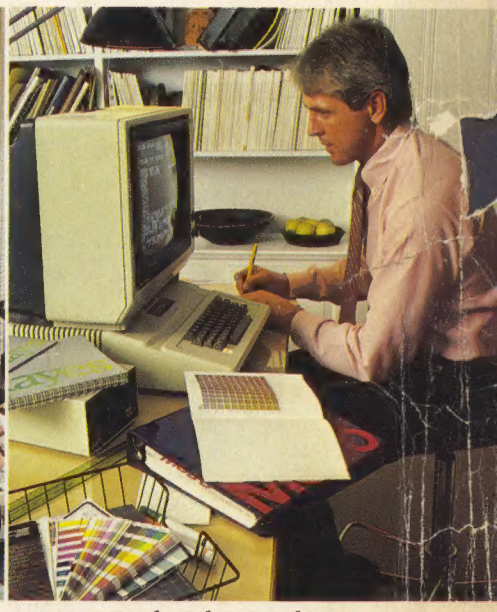
Hayes™



"Thanks for the prompt reply. Sure was a lot faster than waiting for the mail!"



"Gary: The pedigrees for next week's auction are as follows..."



"Attn. Prod., Sales, Purch.: Recommend 50% blue, 30% red screen for closest match."

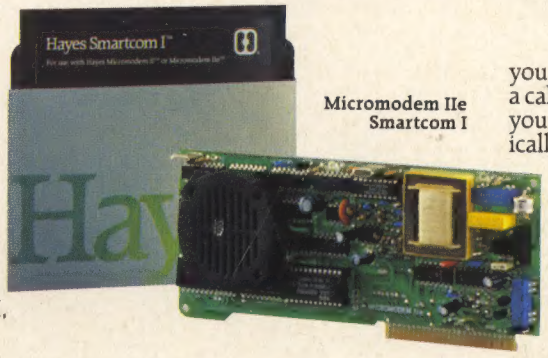
A complete plug-in communications system for Apple® computers. From Hayes, the established telecomputing leader: the simple but sophisticated Micromodem IIe® plug-in board modem and its companion software, Smartcom I.™ Everything you need to expand the world of your Apple II, IIe, II Plus and Apple III. In one, convenient communications package.

With Micromodem IIe and Smartcom I, you can access data bases, bulletin boards, and the varied resources of information services. Plan your travel itinerary via computer, including flight numbers, hotel and rental car reservations. Retrieve and analyze daily stock and options prices. Work at home and send reports to your office. You can even do your gift shopping by computer!

Micromodem IIe. Think of it as your Apple's telephone. It allows your computer to communicate with any Bell-103 type modem over ordinary telephone lines, at 110 or 300 bits per second. Micromodem IIe installs easily in an expansion slot, and requires no outside power source. It connects directly to either a single or multiline modular phone jack, to perform both Touch-Tone® and pulse dialing.

Micromodem IIe dials, answers and disconnects calls automatically. And, unlike some modems, it operates in full or half duplex, for compatibility with most time-sharing systems.

A built-in speaker lets you monitor your calls when dialing. That way, you'll know if a line is busy. With Smartcom I, Micromodem IIe automatically redials your last number.



Micromodem IIe
Smartcom I

Discover how Micromodem IIe can help maximize the capabilities of your Apple. While Smartcom I software will minimize *your* efforts.

Smartcom I companion software. For effortless communications. Whether you're a newcomer to personal computing or a seasoned professional, you'll appreciate the ease and speed with which you can perform any communications function. Thanks to Smartcom I!

Let Smartcom I guide you through a few easy-to-answer questions to tailor the program to your particular needs. Then you're ready to go!

Make a selection from the Smartcom I menu to manage your communications, files or printer. Program prompts guide you along the way. And menu selections let you easily make a call, end a call, or answer a call. When you're on the receiving end, your Micromodem IIe answers automatically, even if you're not there!

Convenient! And so is the Smartcom I memory for phone numbers. Smartcom I stores three of your most frequently called telephone numbers and one prefix. Plus, it also remembers the last number dialed.

Smartcom I also provides a directory of the files stored on your disk. And lets you create, list, name, send, receive, print or erase files right from its menu.

Smartcom I is as versatile as you need it to be. It accepts DOS 3.3, Pascal, CP/M™ 3.0 or CP/M Plus™ operating systems. And accommodates up to six disk drives and several printer interface cards.

Like all our products, Smartcom I and Micromodem IIe are backed by excellent documentation and full support. Including a two-year limited warranty on Micromodem IIe and a 90-day warranty on Smartcom I!

Hayes®

See your dealer today. Then plug into the exciting world of telecomputing.

Hayes Microcomputer Products, Inc., 5923 Peachtree Industrial Blvd., Norcross, Georgia 30092. 404/441-1617.